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PERORAL GASTROSCOPY

INCLUDING EXAMINATION OF THE SUPRADIAPHRAGMATIC STOMACH

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Endoscopic examination may be said to be indicated for the diagnosis of every disease of the stomach, though not necessarily in every case of such disease. It does not replace nor lessen the necessity for any other method of diagnosis nor does it replace other methods for treatment except for the removal of foreign bodies.[1]

There has been fully realized the prophecy made seventeen years ago by one of the early workers in this field, who said: "Gastroscopy is not simply a feat. It has a field of usefulness that will increase as our skill and knowledge increase."[2]

Broadly speaking, there are three methods of gastroscopy: one by using an open tube, another by using a lens system and a third by combining both the open tube and the lens system. Each of these methods has its uses and its limitations.

METHODS OF GASTROSCOPY

Open-Tube Gastroscopy.—This is the method required for the removal of foreign bodies and the taking of specimens of tissue for histologic examination. It has all the advantages of looking directly at tissues examined rather than at a lens-projected or prism-deflected image.[3] Its limitations are: (*a*) It requires a straight and rigid instrument, (*b*) much training and skill in the introduction of the instrument are necessary for the safety of the patient, and (*c*) the explorable area is limited even with the aid of the very important external abdominal manipulation.[4] It is perfectly safe so far as the stomach is concerned, but serious and even fatal trauma of the esophagus may occur if its passage is attempted by the untrained. These dangers are eliminated by skill and an especial element of safety arises from the fact that the esophageal lumen ahead is always followed. The tube is never advanced until a lumen is found.[5] A lumen ahead cannot be seen with a lens system.

Lens System Gastroscopy.—The advantage of a lens system is that a much larger field of vision is available. The limitation is the danger of introduction of an instrument presenting no esophageal lumen ahead. This danger is obviated by the introduction of an open tube through which a lens system is passed. The development by Wolf and Schindler of a flexible distal half for the lens-system gastroscope has eliminated much of the difficulty and danger of blind passage, provided there is no disease of the esophagus.

Danger.—Almost all the danger in gastroscopy is associated with the insertion through the esophagus, especially at the cricopharyngeal and diaphragmatic pinchcocks. Even the flexible gastroscope, if put into the mouth and ruthlessly pushed, is more likely to enter the mediastinum or pleural cavity than the esophagus.[6]

Complications: Pneumothorax, mediastinal emphysema, mediastinal abscess, gaseous cervical cellulitis and subcutaneous emphysema are all possible complications of ill advised or unskilled instrumentation. None of these need follow careful, gentle insinuation of a gastroscopic tube by the technic of finding the lumen.[7]

Technic has been already minutely described[8] and hence need not be given here. The watchword of safety is "find the lumen." In finding it anatomic knowledge is useful and even essential, but it must never be taken for granted that the lumen is where it ought to be; the lumen must be found wherever it may be. With the open-tube gastroscope it is found by sight; with the semiflexible gastroscope it is found by sense of touch. If it cannot be found by touch, it may be strictured or compressed or deflected. Skilful open-tube gastroscopists will always examine the esophagus with the open tube first, not only to determine the presence or absence of adequate lumen unweakened by disease but to exclude esophageal disease as a cause of the patient's symptoms. Roentgen study will help, but its negative results are not always conclusive; in some cases a radiographically and fluoroscopically adequate lumen will not permit the blind passage of the flexible gastroscope because the lumen is not as large as it looks to be in the roentgenogram, or because there are webs, shelves or offsets in the axis that are not revealed by the roentgen examination.

Read before the Section on Gastro-Enterology and Proctology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.

1. Jackson, Chevalier, and Jackson, C. L.: Bronchoscopy, Esophagoscopy and Gastroscopy, Philadelphia, W. B. Saunders Company, 1934.
2. Jackson, Chevalier: Tracheobronchoscopy, Esophagoscopy and Gastroscopy, St. Louis, Laryngoscope Publishing Company, 1907.
3. Jackson, Chevalier: Peroral Endoscopy and Laryngeal Surgery, St. Louis, Laryngoscope Company, 1914.
4. Jackson, Chevalier: Statistics of Seventy Cases of Gastroscopy, Am. J. M. Sc. **136**:72 (July) 1908.
5. Jackson, Chevalier: Gastroscopy: Reports of Additional Cases, J. A. M. A. **49**:1425 (Oct. 26) 1907.
6. Jackson, Chevalier: Esophagoscopy and Gastroscopy, Reference Handbook of the Medical Sciences, New York, William Wood & Co. **4**:106, 1914.
7. Jackson, Chevalier: Endoscopie, textbook, Paris, Octave Doin, 1923.
8. Jackson and Jackson,[4] Jackson (footnotes 3 and 7).

NORMAL GASTROSCOPIC APPEARANCES

The appearances of anything are made up of color, form and movement.

Color.—This is in the eye of the observer and hence subject to a personal equation. Individual variations within the normal are almost as great as in the pharynx. It may be pale and anemic or red and engorged. Another variable is the degree of illumination. A brilliantly overilluminated electric lamp will blanch the apparent color; a weakly illuminated lamp will deepen the color and render it more reddish in tint. Therefore it is essential that the degree of illumination be always the same. Still another variation may come from the presence of even a small amount of food; this deepens the color.[2] Under proper illumination the color of the gastric mucosa is a deep pink as seen in the open-tube gastroscope, a pale orange red as seen in the lens-system rigid gastroscope, and a somewhat deeper red as seen in the flexible gastroscope. In going down with the open-tube gastroscope the esophageal mucosa is noted as a pale rather bluish pink; the transition to the deeper yellowish pink on passing through the hiatal pinchcock into the stomach is readily noted (for gastroscopic purposes the abdominal esophagus does not exist). When a lens system is put in through the open tube, even with a much greater illumination, the color is usually somewhat deeper and more orange in tint. This is in great contrast to the color of the esophagus by the open tube and especially to the pale pink color normally seen through the lens-system cystoscope. Branching vessels are visible with the open-tube gastroscope.

Figure 1

Figure 2

Fig. 1.—Bleeding, round ulcer of the gastric mucosa in a woman, aged 28. The blood trickled from the erosion on the fold and formed a little pool in the lower posterior part of the stomach (patient recumbent). Open-tube gastroscope. Usually the bed of the ulcer is yellowish, but if bleeding, as in this case, the bed of the ulcer is crimson with blood. The surrounding mucosa is usually not as inflammatory in appearance as one would expect. There are in some cases subepithelial hemorrhages in spots.

Fig. 2.—Carcinoma involving the lesser curvature in a man, aged 33, as seen through the flexible lens-system gastroscope. The window of the gastroscope is directed toward the pylorus. The extensive infiltration seen at the right of the field was a pale lavender mottled with white and violet. Both color and form of image of malignant tumors vary widely.

Form.—The form of the structures seen through the gastroscope varies greatly with the region, the movements and the degree of inflation, if used. Folds crowd in on the mouth of the open tube. They are not ordinarily seen on the proximal part of the lesser curvature, but increase in prominence beyond; they are not conspicuous on the anterior wall. In other regions the folds crowd in until driven back by a few strokes of the handball. With a window plug and increased pressure they may be made to disappear almost completely from any part. It is difficult to see the pylorus because of the mounding forward of the posterior gastric wall caused by the spine. With the flexible gastroscope and moderate inflation, folds are not usually noticeable on the anterior wall; on the lesser curvature they are visible toward the antrum. In other regions of the stomach, folds are conspicuous unless flattened by inflation; in some regions they can be obliterated by inflation pressure. After passing a distance of a few centimeters from the cardia, one gets the impression of a trend of the direction of the folds toward the pylorus. There are folds, however, that seem to run in any direction. Branching of folds is noted. The forms of the pylorus and the antrum vary with movement and position but may be identified by general average form. The left end of the antrum may be contracted so as to lead an inexperienced observer to believe that he is looking at the pylorus. All anatomic forms seen through the open tube are actual size; through a rigid lens system they are magnified; with a flexible lens system they are diminished.

Movement.—The stomach is in constant movement, yet this is not troublesomely in evidence at gastroscopy except as it causes a great variation in the images seen and recorded. Under the influence of movement the images give the impression of prominence, recession and even disappearance of folds. The most constant form of fold, as noted many years ago,[2] is one of horseshoe shape seen at the right as the stomach is entered with the open tube. At times a puckering of the folds may give the impression of numerous narrow folds at the pylorus (fig. 3).

NEGATIVE OBSERVATIONS

Though negative observations are of less value than positive ones, they are of more importance today than they were in the earlier days of the work.[9] It is possible for a small isolated lesion to be overlooked; but, if the observer's eye is educated to gastroscopic vision, normal mucosa can be recognized and gastritis or other diffused lesions can be excluded. With the flexible gastroscope the larger explorable area renders a negative opinion still more valuable; but it must be remembered that no image is received from the distal end. It comes through a side window. To give importance to negative observations this side window must be turned to face successively in all possible directions. This is done by rotation, and a full free swing around the theoretical 360 degrees is not always practically attainable because of the mounding forward of the posterior gastric wall by the spine. Careful search and repeated examinations with the flexible gastroscope will yield valuable data even in a negative way.

Contraindications.—When clearly indicated in a patient free from cardiovascular disease, there are no absolute contraindications to open-tube gastroscopy except lack of skill in performing it. If obstructive disease of the esophagus prevents entering the tube all the way to the stomach no harm is done and the esophageal malady is positively diagnosticated. The same may be said of the combined open tube and lens-system gastroscope in which the open tube is first passed by sight. For lens-system gastroscopes, rigid or flexible, disease of the esophagus is a contraindication because of the special danger of a blindly passed instrument in such cases.

INDICATIONS FOR GASTROSCOPY IN DISEASE

Every patient with gastric symptoms should have a gastroscopic examination for diagnosis, unless there

9. Jackson (footnotes 2-7). Jackson, Chevalier: Esophagoscopy and Gastroscopy, Laryngoscope **21**: 923 (Sept.) 1911; Gastroscopy, New York M. Rec. **71**: 549 (April 6) 1907; Recent Progress in Endoscopy of the Larynx, Trachea, Bronchi, Esophagus and Stomach, Proc. Internat. M. Cong., London, 1913, sec. 13; Laryngoscope **23**: 721 (July) 1913.

are overbalancing contraindications. Today this seems a radical statement; but the examinations with the gastroscope in so many cases have made such important additions to the pathologic data that one cannot but feel that a full study of a case of suspected gastric disease has not been made if gastroscopy has been omitted. It should be repeated for emphasis, however, that gastroscopy is not indicated in any case as a substitute for other methods of examination; therefore, no other method should be omitted. Gastroscopy reveals the pathologic changes; it gives little information, except inferential, as to function. Persistence of symptoms after gastro-enterostomy calls urgently for gastroscopic examination not only of the stomach in general but of the anastomotic orifice especially. Localized gastritis and erosions are often found in such cases.

Figure 3

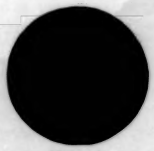

Figure 4

Fig. 3.—The pyloric antrum showing the open pylorus beyond the overhanging fold. The form of the antrum varies widely in form and movement, so that no one image can be regarded as characteristic; but the pylorus itself, when normal, varies little and is always easily presented and identified.

Fig. 4.—Gastroscopic view showing chronic gastritis in the herniated stomach in a man, aged 54. The surface is mottled, and superficial erosions are visible on the three folds toward the left. The color was bright orange red.

Hematemesis is a strong indication for gastroscopy whether the vomited or regurgitated blood is bright red or brownish.[10] In all such cases the open-tube gastroscope or at least the standard esophagoscope should be passed first to exclude disease of the esophagus. If this is negative, the flexible gastroscope may be passed for more complete exploration of the stomach. A bleeding point may be seen corresponding to a slight erosion; but care is necessary to avoid mistaking for the source of hematemesis the slight bleeding sometimes noted from tubal contact; this comes from minute, bulging capillaries, is only a few drops in amount, and does not reappear when wiped away. The wiping test can be applied only if the open tube is used. In some cases a bleeding point and fresh blood can be found, and a lake of it may be seen in the dependent part of the stomach (fig. 1). Older brownish blood may be present, but it may not always be possible to recognize the dark interplical streaks of fluid through the flexible gastroscope, and because of the angle of vision a lake may not be presented to view. In such cases these evidences of bleeding may be obtained with the open tube, and after aspiration the source may be found. If not, the examination should be repeated at a number of subsequent séances with the flexible gastroscope.

Chronic gastritis is very commonly associated with a moderate amount of bleeding. Larger hemorrhages are, of course, usually found in ulcer, cancer and breaking down gumma. In these conditions biopsy with the open-tube gastroscope is indicated. The following abstract of a case is illustrative of the value of gastroscopy in locating the source of hemorrhage:

CASE 1.—*Hematemesis from erosion of the gastric mucosa.* A neurotic, anemic, emaciated woman, aged 28, with a fearful dread of cancer, brought up considerable quantities of blood, spattering it about over the bed or walls or furniture as it was projected from the mouth during almost daily attacks of choking, coughing and strangling. The department of diseases of the chest had referred the patient with a negative report to the gastro-enterologic clinic. All examinations, including gallbladder, gastric analysis and roentgen-ray, had been negative except that the examinations of the vomited blood indicated that it had been in the stomach, though it was never of "coffee ground" character. Gastrotaxis was considered a possibility. The patient was referred to us to determine the source of blood, first by esophagogastroscopy, and if that was negative we were to do a tracheobronchoscopy also. The esophagus was found free of lesions, but longitudinal streaks of blood were noted. Passing downward in the stomach, three separate bleeding points were noted. With each of them the blood reappeared promptly when wiped away; in the moment before reappearance it was noted that the first and third points were erosions and that the intermediate one was a small ulcer. The latter is sketched in figure 1. The hematemesis ceased after treatment by a dietary regimen and the administration of bismuth subnitrate dry on the tongue.

Neurotic Patients with Gastric Symptoms.—A tentative diagnosis of hysterical gastric neurosis is a clear indication for gastroscopy. Over and over again in such cases a lesion, most often a chronic gastritis, has been found, and appropriate treatment has yielded good results. In many instances of supposed hysterical gastric symptoms we have found the stomach normal, but the symptoms fully accounted for by a chronic esophagitis, a peptic ulcer of the esophagus or other entirely unsuspected esophageal lesions. Treatment directed to the gullet caused the supposed gastric symptoms to disappear. The following abstracts from our records are examples:

CASE 2.—*Peptic ulcer of the esophagus mistaken for hysteria.* A woman, aged 23, had had various unquestionably hysterical manifestations since she was 15 years of age. For two years she complained of fulness, pressure, weight, epigastric pain and distress after eating; at times to get relief she would induce vomiting by putting her finger in her throat. Burning pains would persist for half an hour or less; after this she would be comfortable until she ate again. Medicines and special food formulas produced no discomfort. "Hunger pains" were often noted. Functional, roentgen and all other studies were essentially negative. A tentative diagnosis of hysteria was made and the patient referred to us for gastroscopy. The stomach by direct inspection was normal, but there was a small peptic ulcer in the lower third of the esophagus surrounded by the usual extensive area of peptic esophagitis.

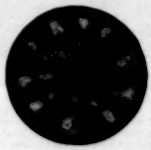

Figure 5

Figure 6

Fig. 5.—Chronic, edematous, nodular gastritis of the supradiaphragmatic stomach as seen through the open-tube gastroscope in a woman, aged 47.

Fig. 6.—Edematous, hypertrophic gastritis with polypoid formations, as seen through the open-tube gastroscope in a woman, aged 37. Biopsy demonstrated that the tumor-like masses were not truly neoplastic; they were made up of hypertrophic, edematous gastric mucosa.

10. Jackson, Chevalier, and Jackson, C. L.: Gastroscopy, Loose Leaf Medicine, London, Thomas Nelson and Sons, 5: 421, 1934.

Case 3.—*Chronic gastritis treated for hysteria.* A girl, aged 16 years, had had a number of hysterical attacks accompanied by complaints of a lump in the throat, vague pains in various regions and severe "blinding" headache that disappeared after it was too late to go to school. Recently, during summer vacation, she had paroxysms of colicky pain, eructation, and a feeling of pressure vaguely referred to "the pit of the stomach." The patient had been treated as hysterical. All functional tests and laboratory examinations including roentgen studies were negative. Gastroscopy revealed an intensely red mucosa, swollen folds that obliterated valleys between them, small erosions and rather large patches of tightly adherent secretions. Treatment by the gastro-enterologist caused a disappearance of these objective evidences of chronic gastritis, and general medical care and management cured all the psychic manifestations.

INDICATIONS FOR GASTROSCOPY FOR FOREIGN BODY

Any foreign body that has reached the stomach spontaneously by natural passages may be brought back

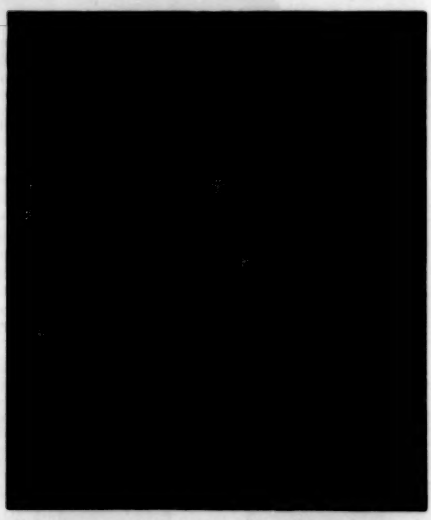

Fig. 7.—Toy watch in stomach of a child, aged 4 years, illustrating the indications for gastroscopic removal. The toy watch had been in the stomach for more than a month. Gastroscopic removal through the mouth was indicated partly because of doubt as to passage out of the stomach but chiefly because of the probability that the length of the foreign body would cause it to jam in the turns of the duodenum even if it did pass through the pylorus. No anesthetic, general or local, was necessary.

up by the same route. The indications for doing so, however, may or may not be present. Briefly, they are as follows: (1) a foreign body too large or a pylorus too small [11] to permit passage of the intruder through the pylorus, (2) a foreign body of character rendering its passage through the intestine dangerous; this danger may arise from sharp points or edges (fig. 7),[11b] size (figs. 7 and 8),[12] or toxic qualities, as radium capsules.[13] Pins and needles may penetrate the pyloric ring. There are many borderline cases, as for instance open safety-pins. Many have been known to pass through the intestine harmlessly, but some have lodged and perforated. A large safety-pin, if not too large to pass the pylorus, may lodge in the turns of the duodenum.[11b] If it passes these it will go through ring-end first and the spreading point will prevent the keeper hooking anywhere; on the other hand, a very small pin may turn over and try to pass onward, point and keeper leading; this is almost certain to cause lodgment. Peroral pyloroscopy has been found necessary for removal of an open safety-pin hooked in and propping open the pylorus.[14] These contingencies render it advisable to remove open safety-pins by peroral gastroscopy. Foreign bodies impacted in the supradiaphragmatic stomach require removal by peroral gastroscopy.[11b] Before a gastroscopy for foreign body is done in the subdiaphragmatic stomach, a lateral roentgenogram is required to make sure that the foreign body really is in the stomach and not in the colon anteriorly or the duodenum posteriorly nor in the costophrenic sulcus of the left lung.[1] A foreign body may rap many times at the pyloric door before it is permitted to pass the threshold. A month is long enough to wait for any foreign body to pass out of the stomach. Gastroscopic removal is too simple and safe a procedure to justify waiting longer. During the waiting period no cathartics should be given and no change in diet should be made; normal intestinal contents and normal peristalsis afford the best conditions for safe passage. The subject of gastroscopy for foreign bodies is elsewhere discussed more fully.[15]

Gastritis.—It is in uncomplicated gastritis that the generally invaluable diagnostic aid of the roentgen ray is least helpful. It is therefore in this disease that gastroscopy has one of the largest fields of usefulness in supplementing the diagnostic work of the gastro-enterologist. A tentative diagnosis of gastritis calls for diagnostic gastroscopy, and the call is very urgent when treatment based on the inferential working diagnosis has not resulted in a satisfactory degree of improvement. In many of our cases gastritis was associated with preventriculosis (so-called cardiospasm). In most of these, so far as determined by objective demonstration, the gastritis was limited to the left two thirds of the stomach; complete exploration of the stomach was not made. All study and treatment were concentrated on the preventriculosis to which the gastritis was assumed to be secondary. It seems justifiable to infer that the constant trickling of acrid fermented foods from a preventriculous esophagus caused the gastritis. In most cases the gastritis improved as the esophageal stasis was eliminated.

The following is an abstract of the history of a typical case of gastritis mistaken for cancer.

Case 4.—*Chronic gastritis with symptoms suggesting cancer.* A man, aged 62, had been under treatment during nearly two years on a diagnosis of cancer based on pain, anemia, emaciation, color of the skin, absence of hydrochloric acid, and a small palpable mass. Gastroscopy revealed an old chronic gastritis with scarring and a tiny spot of recent ulceration.

The gastroscopic appearances of chronic gastritis vary greatly, especially as seen through lens-systems. The

11. (*a*) Jackson and Jackson;[1] (*b*) Foreign Bodies in the Air and Food Passages, textbook and atlas, New York, Paul Hoeber, Inc., pp. 115, 161, 162, 164, 170, 210 and 246.

12. Jackson, Chevalier: Safety-Pins in Stomach, Peroral Gastroscopic Removal Without Anesthesia, J. A. M. A. **76**: 577-579 (Feb. 26) 1921.

13. Clerf, L. H.: Radium Capsules in Stomach; Gastroscopic Removal, Am. J. Roentgenol. **17**: 635-636 (June) 1927.

14. Jackson, Chevalier: Gastroscopie, Arch. internat de laryng. d'otol. et de rhinol. **22**: 785-800, 1907; Pyloroscopy, S. Clin. North America **4**: 2 (Feb.) 1924.

15. Jackson, Chevalier, and Jackson, C. L.: Les maladies de l'oesophage, Monographies, Paris, Presses Universitaires de France, 1932; footnotes 1 and 11 *b*.

gastroscopic appearances in the open tube are easily recognized by any one familiar with the appearances of mucosal inflammation. They look very much like similar processes on other mucosal surfaces. The same cannot be said of the lens-system and flexible gastroscopes. It is necessary for the observer to acquire familiarity with the modifications imposed by the lens-system, especially the darkening and reddening effect, as elsewhere herein mentioned. In some cases of gastritis the mucosa is a still deeper red; in other cases it is pale, anemic almost cicatricial, and one gets, sometimes, the impression of a deep violet tinge. The

Fig. 8.—Bobette pin in the stomach of a child, aged 2 years, removed through the mouth by gastroscopy. Removal was indicated because of the length of the pin in relation to the age of the child. It was determined that the pin was too long to make the turns in the duodenum, involving great risk of transfixion. Cases of gastroscopic removal and of duodenal transfixion of bobette pins of this kind and size in children of this age have been elsewhere reported by us (footnotes 1 and 11 *b*). The lateral roentgenogram was necessary to determine positively that the foreign body was in the stomach.

presence of a little food deepens the color. Through a lens system the swollen folds or rugae give the impression of crowding together, obliterating the open spaces between ridges. There is blurring of the sharp outlines. In parts of the stomach where there are no ridges the mucosa is mottled, dark and velvety in appearance. Purulent or mucopurulent secretions, when due to gastritis, are tightly adherent. Swallowed discharges from the throat and nose are usually not adherent to the walls of the stomach.

The appearances of gastritis vary to a much greater extent than pathologic studies based on postmortem gross and histologic examinations would lead one to believe. It would seem that a reclassification of the varieties of gastritis based on gastroscopic observations will be necessary. Localized as distinct from diffused gastritis is much more commonly seen gastroscopically than one would suppose from autoptic records.

It must be remembered that the presence of inflammation does not exclude malignant or benign ulcer or other lesion, because once the epithelial barrier is passed in any disease the mixed secondary infections produce inflammatory conditions.

Gastroscopy of the Supradiaphragmatic Stomach.—Hiatal hernia of the stomach is a rather common condition in our records. Most of these patients came with a tentative diagnosis of esophageal disease, in many instances cancer of the esophagus. In all these cases a definite diagnosis was reached by gastroscopic examination.

The open tube is best for this purpose because the cavity of the supradiaphragmatic stomach is not sufficiently large or distensible to get away from the walls a sufficient distance to obtain a good image in a lens-system instrument. Moreover, the folded walls collapsing over the distal end of the open tube gives an ideal opportunity for minute inspection. After the folds have thus passed minute inspection before the mouth of the tube, a handball is attached in place of the aspirating rubber tube and the folds are gently pushed back. To prevent the escape of air, the proximal mouth of the tube is covered with the thumb. When the thumb is removed from time to time the cavity of the herniated stomach is demonstrated, and the folds are seen slowly to regain their collapsed positions more or less influenced by the negative intrathoracic pressure created by inspiration. Our gastroscopic observations indicate that the esophagus in some of these cases is not congenitally short but fails to grow in length. We believe that the vertical growth of the esophagus depends on the downward drag of the diaphragm and abdominal viscera. When the hiatus is congenitally large, this drag on the growing esophagus is lacking. The primal factor is therefore not a congenitally short esophagus but a congenitally large hiatus esophageus. Our observations in other cases indicate that the hernia was acquired in adult life during violent continued vomiting.

Gastritis of the Supradiaphragmatic Stomach.—Chronic inflammation of the mucosa is commonly present in the herniated part of the stomach. Erosions often accompany the inflammation; the usual site of erosion is at the entrance of the herniated stomach; in other words, the part that properly belongs in the grasp of the hiatal pinchcock of the diaphragm (figs. 9, 10 and 11). These erosions and the form of gastritis limited to the supradiaphragmatic stomach often give rise to symptoms suggestive of ulcer of the subdiaphragmatic stomach in cases in which the latter is normal. This form of gastritis limited to the herniated stomach does not seem to have been recognized (figs. 4 and 5). The following is an abstract of an unusual case:

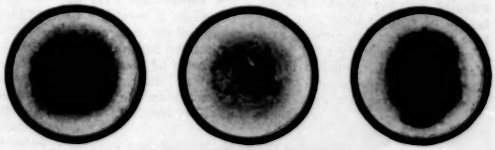

Figure 9 Figure 10 Figure 11

Fig. 9.—Superficial, erosive, evanescent type of ulcer, with inflammatory zone, on the mucosa at the esophagogastric junction in a patient with hiatal hernia of the stomach. The stenosis, the ulcers and the inflammatory zone are typical of hiatal hernia, and are probably due to contact of regurgitated acid gastric juice with this esophageal mucosa.

Fig. 10.—Appearance in same patient as in figure 9, three weeks later. The ulcers have healed but the stricture remains; it is oval.

Fig. 11.—Appearance in same patient as in figures 9 and 10, a month later. A new crop of ulcers has developed and they are in new locations.

CASE 5.—*Chronic aphthous or herpetic gastritis of the supradiaphragmatic stomach.* A woman, aged 50, complained of intermittent attacks of burning and pain in the epigastrium extending through to the back, sometimes coming on immediately, at other times within a few hours, after eating. Eructations were noted occasionally. The symptoms would all disappear for a few weeks at a time and seemed more severe for a few days, when they recurred. The recurrent attacks

were regularly periodic, though menstruation had ceased. The patient was referred for gastroscopy, with negative reports from the gastro-enterologic and gynecologic departments. Passage of the open tube revealed the hiatal part of the esophagus somewhat narrowed and located at a much higher level than normal. On three of the folds there were superficial yellow erosions. Each time these erosions were touched with the lip of the mouth of the tube the patient flinched. The tube (8 mm.) met with slight resistance but passed on downward, entering a supradiaphragmatic stomach with chronically inflamed mucosa. The hiatal passage was narrower than usual in cases of herniated stomach. At a subsequent examination, other erosions were noted. Those first seen healed. A 7 mm. tube was later slowly and carefully insinuated into the subdiaphragmatic stomach. This was found to be apparently normal. Dilatations of the narrowing at the hiatal pinchcock produced permanent relief. There had been no recurrence of symptoms when the patient was last heard from three years later.

New Growths in the Stomach.—Benign and malignant growths are usually evident at roentgen examination, yet we have often been called on to decide definitely, by means of gastroscopy, before the patient would consent to operation. This was most often in patients who objected to an exploratory operation. In quite a number of our cases a small malignant ulcerative growth was found with the gastroscope after roentgen examination was negative. In other cases gastroscopy has been of the utmost value in relieving the anxiety of the physician and the anguish of the patient by demonstrating the benign character of a condition supposed to be malignant. The following notes are abstracted from the histories of examples of such cases.

Case 6.—*Chronic gastric ulcer.* In a man, aged 40, a previous diagnosis of cancer had led to a miserable year of anxiety, accentuated by the fact that the father and a sister had died of cancer. The symptoms were loss of weight, epigastric distress unrelated to food, vomiting occasionally showing "coffee grounds," anorexia, constipation, occult blood and anemia. Repeated gastric analyses demonstrated absence of free hydrochloric acid. The report of a roentgen examination was negative. Gastroscopy revealed chronic esophagitis, chronic gastritis and a chronic ulcer at the edge of the antrum in the segment merging into the lesser curvature. The appearances were so typical of chronic ulcer that we did not deem it necessary to take a specimen; but, yielding to the request of the medical and surgical consultants, we did so, nipping out the margin of the ulcer. Dr. V. L. Andrews found no evidence of malignancy. The relief of the patient's anxiety and an ulcer regimen resulted in a complete cure. A year later, when the patient came in, none of us recognized him; he weighed nearly 200 pounds (90 Kg.).

Case 7.—*Adenocarcinoma of the stomach.* In a man, aged 24, typical general symptoms of carcinoma were present but doubt was cast on this diagnosis because of the negative roentgen examination, the age of the patient, hyperchlorhydria, the intermittence and the duration of the symptoms (six years), and the absence of a palpable mass. Gastroscopy revealed a chronic gastritis and a soft bleeding, mulberry-like lesion on the posterior wall close to the antrum. A specimen taken from this was reported by Dr. V. L. Andrews as adenocarcinoma. At operation J. Hartley Anderson found no metastases and a favorable limitation in the extent of the growth. Partial gastrectomy gave three years of freedom from local recurrence. The patient died of sigmoidal fibrocarcinoma.

Biopsy.—The taking of a specimen of tissue through the open-tube gastroscope is easily done, and hundreds of cases without a single complication have demonstrated its freedom from danger when done with proper precautions. The nipping off of a benign growth or the removal of fungations from a malignant one involves no risk. In the ulcerative type a specimen may be taken from the edge of the ulcer. There might be risk in biting deeply into the bed of the ulcer, especially if it should prove to be benign. In the infiltrative type of lesion not yet ulcerative and especially when the mucosa is not grossly abnormal, it is best to postpone the taking of a specimen until the ulcerative stage has been reached.

CONCLUSIONS

1. Contraindications to gastroscopy are few; they are of two kinds, general and local. General contraindications are (*a*) very high and irreducible hypertension and (*b*) a moribund or hopelessly ill condition of the patient.

2. Local contraindications to the passage of an open tube do not exist except in a case of aneurysm encroaching on the esophagus. Any disease of the esophagus constitutes a contraindication to the use of the flexible gastroscope.

3. Lens-system gastroscopes present no image or structure in advance of the distal end; therefore preliminary open-tube examination is advisable for safety.

4. The only dangers in flexible-tube gastroscopy are incidental to passage through the esophagus. The dangers are entirely eliminated by careful work and by preliminary exclusion of esophageal disease.

5. A diagnosis of gastric neurosis or of hysteria with gastric manifestations should not be made until both esophagoscopy and gastroscopy have excluded organic disease of the esophagus and stomach.

6. Gastric symptoms so often arise from esophageal lesions that open-tube esophagoscopy is indicated, and for reasons given it should precede gastroscopy.

7. For diagnostic inspection of the stomach the flexible gastroscope is best. It does not permit of biopsy nor of removal of foreign bodies, however. For these, the open tube is required.

8. Gastroscopy for a foreign body is a safe procedure that is advisable when the size, shape and other qualities of the foreign body renders its passage uncertain or unsafe.

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ABSTRACT OF DISCUSSION

Dr. Gabriel Tucker, Philadelphia: I should like to speak of open tube gastroscopy. The authors have given the only safe rule: "Find the lumen." I should like to repeat the injunction and add "Find the lumen and follow it." The great danger in gastroscopy is from complications that follow trauma during the introduction of the gastroscope. If the lumen is found and followed, there should be no complications in a patient whose esophagus has been found normal on examination with the open tube. The authors have mentioned elsewhere the necessity for careful roentgen study of the cervical, thoracic and lumbar spines to demonstrate any abnormality that might contraindicate gastroscopy. This cannot be too strongly emphasized. Free mobility of the spine is necessary in gastroscopy, and careful check-up should be made in order to prevent injury to the spine as well as to avoid injury to the esophagus. Careful roentgen study of the spine, esophagus and stomach should be made in every case prior to gastroscopy. In esophagoscopy the open tube must enter the stomach if the examination of the esophagus is complete. The area of stomach explored is limited to the cardiac end. It is often found, however, that the lesion producing the esophageal symptoms is in the cardiac end of the stomach, particularly carcinoma. I have been able to visualize peptic ulcer of the cardia. Biopsy may be done if indicated. In gastroscopy for foreign body it is very important to know that the foreign body is in the stomach immediately before attempt at removal.

I have used a method of localization which I have not found recorded, which will demonstrate the location and also its relation to the hiatal esophagus through which the gastroscope must enter for removal. The localization is accomplished by fluoroscopy and films in the anterior-posterior and lateral planes with the patient in the position required for gastroscopy. A rubber tube is passed, from 14 to 16 size; a feeding tube of the Levin type may be used; a sufficient length of tube is passed to place a coil in the stomach or until contact has been made with the foreign body. Films and fluoroscope will demonstrate the foreign body if it is in the stomach and also show its relation to the hiatal esophagus. The tube can then be withdrawn and gastroscopy done immediately and there will remain no opaque material to obscure fluoroscopic guidance. The stomach may be emptied of secretions before the tube is withdrawn, if desired. The greater number of cases of foreign body occur in children. Gastroscopy is most difficult in children, because the pressure of the tube compresses the trachea and may obstruct breathing to a dangerous degree. Tracheal pressure has been avoided by improvements in the gastroscope, making the size of the tube smaller without lessening the working lumen of the tube. This has been accomplished by the perfection of a one-piece lamp light carrier which I devised, for the infant bronchoscope, with the assistance of the George P. Pilling Company of Philadelphia. This light carrier lamp has been adapted to a slender esophagoscopic tube. Two sizes of tubes have been constructed: for infants, 3.5 mm. by 35 cm.; for older children, 5 mm. by 35 cm. The larger gastroscopic tube will permit the use of curved forceps that "go around the corner," which one frequently finds necessary for the removal of foreign bodies. The use of the lens system gastroscope in its present stage of development should prove a valuable aid in the diagnosis of gastric lesions. It will not be of aid, however, in removal of foreign bodies or the treatment of diseases of the stomach until further improvements are made.

DR. WILLIAM A. SWALM, Philadelphia: It has been my privilege to work up many of these cases clinically and then to visualize the stomach by means of the Wolf-Schindler, semiflexible gastroscope. This gastroscope is about the size of the old-fashioned large stomach tube. The upper half is more rigid than the lower half, and the lower half has a series of lenses, the lower lens being just far enough from the tip so that it is not easily bathed by the stomach juices. The authors have performed considerable preliminary studies on dogs and have correlated the position and partial flexibility of the gastroscope in association with the x-ray department. They state that the method does not replace or lessen the necessity for any other diagnostic or therapeutic method, except for the removal of foreign bodies. There are very few contraindications to its use except for such local conditions of the esophagus as varix, stricture, carcinoma, ulcer, and the so-called cardiospasm. Other contraindications are hypertension, hopelessly ill patients, and aneurysm. Cancer and ulcerations of the stomach, gastritis and other conditions were observed without undue discomfort to the patients and without any mishaps. In acute pain of suspected ulcer, the procedure should be postponed. Success or failure in diagnosis depends to a great extent on the proper preparation by one experienced in the technical procedures of gastric analysis and lavage, and the correlation of these observations with the trained endoscopist of the esophagus and stomach. After careful observation of the fasting gastric residuum and lavage extractions, the stomach tube is allowed to remain in situ for drainage until sufficient time has elapsed for morphine and atropine to exert their physiologic effect. The latter point is important for two reasons: first, to quiet an apprehensive attitude on the part of the patient and, second, to check excessive secretion. The patient should be fully informed and assured that a surgical operation is not contemplated. Visualization through the gastroscope is somewhat analogous to that of the sigmoidoscope, except that in the lens system, as mentioned by the authors, the mucosa of the normal appears somewhat of a deeper orange red shade and that the view is at right angles or slightly retrograde from the lens to the extent of 60 degrees. Sufficient distance from the walls of the stomach is necessary in the lens system, and this can be readily facilitated by adequate air injection by an assistant, using a hand bulb.

DR. SAMUEL WEISS, New York: Gastroscopic examination has been practiced on the continent of Europe for more than half a century, and in this country a number of men, notably Drs. Chevalier Jackson and Max Einhorn, have devised methods and instruments for inspection of the stomach under direct vision. In 1930 I presented before this section a new gastroscope for visualization and photography, the important features of which were a flexible outer tube, a focusing pinion and a movable reflecting mirror. I should like to call attention to certain clinical aspects of gastroscopy. To make the procedure useful, one must aim to make it less drastic by eliminating such measures as the use of morphine and atropine and hospitalization. An important feature of gastroscopy concerns the preparation of the patient. The stomach must be empty. In the new gastroscope the outer flexible tube has a large catheter through which lavage may be effected without undue strain on the patient After this catheter is withdrawn, the optic is introduced. If there is recurrence of secretion, the optic may be withdrawn, the catheter reintroduced and suction again applied. Thus one secures a clean field without removal of the outer tube. Regarding the choice of a drug to replace morphine and atropine, I use perparin hydrochloride, a microcrystalline yellow powder almost tasteless, slightly soluble in water and alcohol, but readily soluble in chloroform and ether. Perparin is an isochinolin benzyl derivative closely related to papaverin but three times as active and much less toxic. The antispasmodic effect appears within ten to fifteen minutes after injection, which can be done in the office or clinic with the patient ambulatory. In addition, the outer tube of the gastroscope is smeared with a 1 per cent nupercaine ointment, which will anesthetize the esophagus so that morphine or other opiates are unnecessary.

DR. EDWARD B. BENEDICT, Boston: During the past year at the Massachusetts General Hospital we have conducted gastroscopic examination in about 110 cases, using the new Wolf-Schindler flexible gastroscope. The flexibility of the instrument makes it an entirely safe procedure; we have had no difficulty whatever with any case during or after gastroscopy. Gastroscopy is carried out under local anesthesia. We have even done a number in the outpatient department and allowed the patients to go home shortly afterward. The most important use of the gastroscope is probably in the diagnosis of gastritis. We have established that diagnosis in some sixty cases with or without association with peptic ulcer. In bleeding cases which are unexplained and undiagnosed by the x-rays we have been able to demonstrate small actively bleeding erosions in the mucosa. In some cases diagnosed as gastric neurosis in the past the gastroscope has been taken without any sign of neurosis and a definite diagnosis of gastritis has been established. In carcinoma and ulcer the gastroscope is of great use in confirming the roentgen diagnosis, in localizing the lesion, and in defining its characteristics and extent.

Test for Protective Power Against Yellow Fever.—A method of testing sera for protective power against yellow fever is described and designated as the intraperitoneal protection test in mice. The test consists essentially of the inoculation of mice intraperitoneally with yellow fever virus, fixed for mice, together with the serum to be tested, and the simultaneous injection of starch solution into the brain to localize the virus. If the serum lacks protective power the mice die of yellow fever encephalitis. The test is highly sensitive. Consequently it is useful in epidemiological studies to determine whether individuals have ever had yellow fever and in tests to find whether vaccinated persons or animals have in reality been immunized. When mice were given large intraperitoneal injections of yellow fever virus fixed for mice, the virus could be recovered from the blood for four days although encephalitis did not occur. If the brain was mildly injured at the time of the intraperitoneal injection, the symptoms of yellow fever encephalitis appeared six days later, but the virus was then absent from the blood. Strains of white mice vary greatly in their susceptibility to yellow fever.—Sawyer, W. A., and Lloyd, Wray: The Use of Mice in Tests of Immunity Against Yellow Fever, *J. Exper. Med.* **54**:533 (Oct.) 1931.

FEMORAL HERNIA

OPERATIVE REPAIR BY LIVING FASCIAL SUTURES

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My purpose in this paper is to show that absorbable sutures of catgut in the repair of any type of hernia do not give the permanent results afforded by unabsorbable sutures. It is not my object to go into details covering the history, the diagnosis or the generally accepted methods of surgically treating femoral hernia. The only point to bring out is the technic of the adaptation of living fascia to the closure of femoral hernia. I presume that fascial suture has already been used by many surgeons in the repair of femoral hernia, but I can find no illustrated technic in the literature to cover the use of living fascial sutures and therefore present certain minor details which have proved in my hands more satisfactory than any method hitherto employed.

The fundamental principle is that the autogenous fascial suture is a living tissue, which is never absorbed and under aseptic conditions never dies. I[1] recently published the results obtained by the use of living fascial suture in 200 cases of inguinal hernia, and the progressive satisfaction in this group stimulated me to apply the same procedure to the closure of the patulous femoral canal.

To the exceptionally well prepared and experienced surgeon the drawings in this paper will appear very

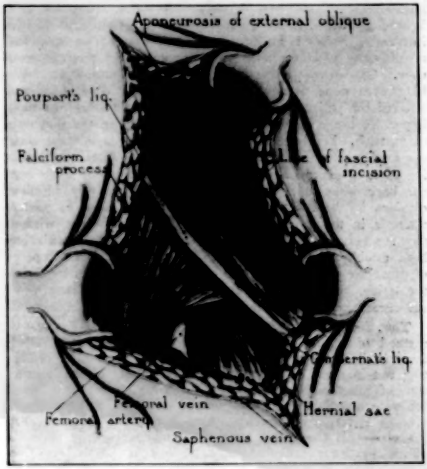

Fig. 1.—Anatomy and line of incision in the external oblique muscle, from which the fascial suture is taken. The inner leaf is cut free at the upper end and left attached to the pubic bone at the lower end.

simple and primer-like in their details. There is no pretense of anything new or original. To the younger surgeons and to operators of limited experience the execution of the technic may prove difficult and hazardous. This will be directly proportionate to their intimate familiarity with the anatomy of the region. The operator must be absolutely certain of his knowledge and familiar with the anatomic structures adjacent to and forming the femoral canal. In every operation for femoral hernia one must identify the femoral

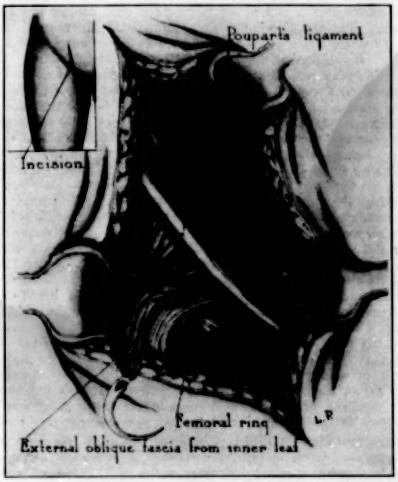

Fig. 2.—Dealing with femoral ring by the femoral approach below Poupart's ligament. The fascial suture is passed under the outer leaf of the external oblique through Poupart's ligament and through Gimbernat's ligament. The pectineal fascia on the inner side of the ring is approximated to the falciform process on the superior and external side of the ring.

vessels, the epigastric vessels, the obturator artery (often in an anomalous position) and, most important of all, the ligamentum pubis or Cooper's ligament.

While the drawings illustrate a method of operative closure by the femoral or subinguinal approach, this route is far from ideal. I have had successful results from closure of the lower end of the femoral canal by fascial suture as illustrated, but I believe that the inguinal approach above Poupart's ligament is by far the most correct anatomically and will more surely give permanent results in a large series of cases. This is a simple problem of physics: Given pressure within a tube or canal, it is obviously easier to prevent escape by closing up the inlet than the outlet. Furthermore, all femoral hernias are acquired and can recur unless the abdominal entrance to the canal is closed.

It is a pity that there exists such a fallacious and rather common impression as that femoral hernia is a simple operation, that anatomic dissection is not essential to success, and that simple ligation of the sac without closure of the ring will result in a permanent cure. In the first place, it is practically impossible to ligate the sac sufficiently high when approached from the subinguinal route and, regretfully, I know that a femoral hernia can recur both after high ligation of the sac and after ligation with attempted closure of the ring below Poupart's ligament.

It is also to be deplored that the rank and file of operating surgeons in this country are not familiar with

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1. Payne, R. L.: South. M. J. 27:220 (March) 1934.

the method of approach and repair of femoral hernia by the route above Poupart's ligament. One desiring information should consult the admirable paper of Seelig,[2] Watson's[3] book on hernia and the recent book on surgical anatomy by Callander.[4] In the last few years I have asked almost every surgeon I have met what method he used in operating for femoral hernia. The answer has been almost invariably the femoral approach below Poupart's ligament, and the impression prevails that the problem is so simple that any hospital intern is capable of securing a successful result.

The utilization of human controls for comparison of operative technic presents a delicate and awkward problem. In my early experience with fascial sutures, however, I had a case in a woman with bilateral femoral hernia. The right side presented a large opening with a large sac containing omentum. The left side had a

Fig. 3.—The ring closed by fascial suture. The free end of the fascial suture is then slit and one end of it passed under the last stitch and a square knot tied. The free ends are then turned upward as shown in the inset and additional anchorage of these is obtained by two ties of silk or chromic catgut.

small ring with a small sac containing a loop of bowel easily reduced. On the right hernia I performed a fascial closure of the ring by the crural or subinguinal route, as illustrated in this paper. On the left side, since the opening in the canal and the sac appeared so small, I decided to make a short, textbook type of incision below Poupart's ligament and used the textbook method of closing the ring with number two chromic catgut sutures, according to the Halstead technic. The operation of the right hernia resulted in a permanent cure, but to my chagrin the hernia on the left side recurred in six months.

To McArthur[5] belongs the credit of first demonstrating the use of fascial implant or suture taken from the inner leaf of the external oblique aponeurosis. To Gallie[6] surgery is indebted for broadening the field of application of fascia in closing all types of hernial defects. Moschcowitz[7] in 1907 presented the inguinal approach as a new operation for femoral hernia, though to Ruggi[8] should belong the credit of first describing the method in 1893. Subsequent descriptions of the

Fig. 4.—The superior or inguinal route of approach for the cure of femoral hernia. The fascial suture has been taken from the inner leaf of the external oblique muscle and is shown free in the drawings. The incision is carried down through the transversalis fascia to the peritoneum.

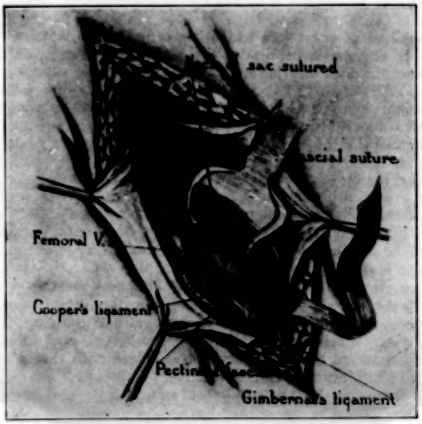

Fig. 5.—The sac has been pulled back and amputated and the neck has been closed. Cooper's ligament is then dissected out.

operative technic by the inguinal route for the cure of femoral hernia have followed closely the method described by Moschcowitz. The results of American

2. Seelig and Tuholske: Surg., Gynec. & Obst. **18**: 55 (June) 1914.
3. Watson, L. F.: Hernia, St. Louis, C. V. Mosby Company, 1923.
4. Callander, C. L.: Surgical Anatomy, Philadelphia, W. B. Saunders Company, 1933.
5. McArthur, L. L.: Autoplastic Suture in Hernia and Other Diseases, J. A. M. A. **37**: 1162 (Nov. 2) 1901.
6. Gallie: Ontario Medical Association, 1921.
7. Moschcowitz, A. V.: New York State J. Med. **7**: 396 (Oct.) 1907.
8. Ruggi, Giuseppe: Del metodo inguinale nelle cura radicale dell'erina crurale, Bologna, N. Zanichelli, 1893.

surgeons show a recurrence ranging from 8 to 30 per cent; the French and German surgeons place recurrence at from 8 to 36 per cent in femoral hernia operated on by the femoral or subinguinal route. My own experience, by the femoral route, is in keeping with that of other surgeons. With these dismaying figures one can see how Moschcowitz with his large experience in hernia would seek to develop and present the inguinal

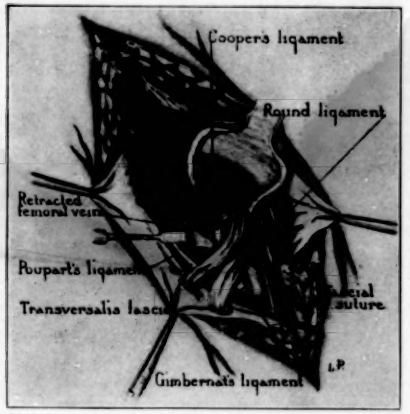

Fig. 6.—The fascial suture has been passed behind the cord or round ligament through Gimbernat's ligament, thence under the transversalis and Poupart's ligament underneath the outer leaf of the external oblique. The suture then doubles back and is passed under Cooper's ligament once or twice, thus obliterating the abdominal opening of the femoral canal by approximation of Cooper's ligament to Poupart's.

method of operation, which has proved so satisfactory. The suggestion herein described of fascial suture would seem to offer an additional safeguard.

With regard to femoral hernia, the outstanding contribution of Seelig in 1914 on the inguinal approach was most timely, especially because of his accurate description of the ligamentum pubis or Cooper's ligament. There is no feature in the inguinal operation for femoral hernia that is as important as the dissection and utilization of Cooper's ligament in the closure of the abdominal opening to the femoral canal.

The inguinal approach for the cure of femoral hernia is the ideal route, for it affords the most feasible avenue for handling strangulation or resection when this is a complication. If constriction in the neck of the sac prevents reduction of its contents, the division of Gimbernat's ligament, on the inner side of the ring, is the safest solution, as there are no important structures encountered and this does not interfere with the subsequent closure of the defect.

In using fascial strips for suture it is absolutely necessary that the suture be firmly anchored at both ends. The method here illustrated provides that the natural attachment to the pubic bone be preserved while the free end is fixed by a square knot, and additional anchorage is secured by silk or chromic catgut. Provided firm anchorage of the free end of the fascial suture is obtained and in the presence of reliable asepsis, one can expect satisfactory and permanent results from the operative method here described.

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ABSTRACT OF DISCUSSION

Dr. H. W. Cave, New York: There is a general impression that the cure of femoral hernia is a simple matter. This is due to the fact that the femoral hernia as a rule is small, that in proportion to the incidence of inguinal hernia there is one femoral hernia to every seventeen inguinal hernias, and to a prevalent belief that two mattress or purse string sutures closing the femoral canal, any kind of suture material being used, will effect a cure. This is erroneous. The anatomic arrangement of the femoral canal is often difficult and uncertain. The rigidity of three sides of the opening renders the uncertainty; the presence of the femoral vein on the lateral side necessitates caution in placing the sutures. Recurrences following the repair of a femoral hernia by either the superior or the inguinal route or the inferior or femoral route are approximately 5 per cent; this is a high percentage of recurrence. A recent analysis of the last hundred cases of femoral hernias in which operation has been performed at the Roosevelt Hospital has shown that over 90 per cent were single and not bilateral, 35 per cent either strangulated or incarcerated, 4 per cent of the strangulated variety necessitated resection of the bowel, 5 per cent were of the Richter variety, and 7 per cent were recurrent. Seven patients of the series died in the hospital. The principal feature in a radical cure is the obliteration of the neck of the sac at its highest point. The combined femoral and inguinal approach will prove, I believe, to effect a more certain cure, for from below a complete dissection from the surrounding structures can be carried out and from above eversion and a much higher obliteration of the neck are obtained. The extensive fascial repair advocated by Dr. Payne should be reserved for recurrent femoral hernias. To advocate making this extensive procedure a standardized one for every type of femoral hernia seems somewhat risky, for the operator who only occasionally employs the large Gallie or Kountze needle may puncture or tear the wall of the femoral vein, thus getting into unnecessary difficulties. May I again emphasize that, no matter how snugly the canal is closed without high secure ligation

Fig. 7.—Femoral canal obliterated. Inset *A* shows method of splitting free end of fascial suture; inset *B*, method of tying the square knot; inset *C*, the free end tied, turned back and further anchored with two stitches of silk or chromic catgut. The remainder of the closure consists of the routine steps of approximation of the different layers as one would do in any hernia operation in the inguinal region.

of the neck, the incidence of recurrence in femoral hernias will continue to be relatively high.

Dr. F. W. Bailey, St. Louis: I am not in favor of the closure from the femoral end. I believe that the closure obtained by a free exposure of the upper end of the canal offers less chance of recurrence. I also believe that the pressure incident to the introduction of a fairly large fascial suture.

with the use of the large so-called Gallie needle, is a little dangerous because of the proximity of the vein. On two occasions I have seen thrombosis follow suture of the lower area with catgut. Consequently I favor closure from above with anatomic exposure, using fascial suture. Most femoral hernias have a content that is resident. Many of them cannot be reduced satisfactorily. No hernia that is incarcerated or strangulated should be forcibly reduced and the opening closed without inspection from within the peritoneum. The combined incision in the skin, which gives a clear view of both the inguinal and the femoral canals, is undoubtedly the most satisfactory. The recurring femoral hernia to me is the least welcome of all; but since I have been utilizing for fifteen years the entrance to the canal instead of the exit, getting a clear exposure of all the fascial structures, I have had a far less rate of return. Fifteen years ago my attention was called to the excellent presentation of Dr. McArthur of Chicago, and since that time I have been using the fascial suture. One is inclined to use a large fascial strip, requiring a broad-eyed needle. My experience in the last eight or ten years has been to utilize a smaller needle and a narrower strip and it has been just as satisfactory. The only new point that I wish to mention is with reference to the incision, and that is that the anatomic approach should be very clearly identified. No needle should be used, as Dr. Payne emphasized, without clearing the fascial structures and being sure that one is suturing fascia and not the tissues surrounding one of the important and dangerous attending structures. I have on a number of occasions been unable to utilize the local fascial area because of tension or because of a previous operation. On those occasions I do not hesitate to use the fascia lata strip, taking advantage of the newer method of Grace and others in obtaining the fascial strip without undue trauma to the leg. In industrial cases it is not wise to make an accessory incision in the leg without a thorough understanding beforehand.

CHANGES IN VAGINAL EPITHELIUM DURING PREGNANCY IN RELATION TO THE VAGINAL CYCLE

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CHICAGO
AND
CARL G. HARTMAN, PH.D.
BALTIMORE

Since the investigations of Hitschmann and Adler [1] on the cyclic changes in the uterine mucosa, other portions of the mullerian tract have been studied in an attempt to show similar physiologic activity. Novak and Everett have demonstrated in the human female that there are secretory cells in the epithelium of the fallopian tubes which undergo cyclic secretory changes. Seckinger and Snyder [2] noted that the spontaneous contractions of the fallopian tube became more marked and rapid in the mid and late intervals following ovulation. This activity was greatly diminished during pregnancy.

Dierks [3] in 1927 published the results of his study of the human vaginal cycle. He obtained pieces of vaginal mucosa from about thirty women from whom he was able to obtain accurate menstrual histories. In his description of the vaginal epithelium he states that it is composed of three layers—a basal layer, a functional layer and a cornification zone. Immediately after menstruation a gradual increase occurred in the thickness of the functional layer. About the middle of the interval a zone of cornification appeared, separating the functional layer from the basal layer. This layer consisted of dark staining cells having a tendency to form granules in the cytoplasm, with rather small dark staining nuclei. The general appearance was that of a narrow, darker staining band of cells interposed between the basalis and the functionalis, which Dierks called the intra-epithelial zone of cornification. With the onset of menstruation a marked destruction of the functionalis and the intra-epithelial zone of cornified cells occurred, so that the basalis was completely denuded at the cessation of menstruation. These rhythmic changes in the vaginal epithelium were under the same ovarian influences as the changes in the uterus.

Dierks' article aroused considerable interest, and many publications appeared in the literature discussing the possibility of a cycle in the vaginal mucosa of the human female. Stieve,[4] Stemshorn,[5] Lindeman, Kückens,[6] Gisbertz [7] and others could not find typical cyclic changes in the vaginal mucosa. Stieve felt that the varying changes which he found were similar to those seen in other mucous membranes, such as in the mouth and pharynx. On the other hand, Keller,[8] Pankow, Geist [9] and more recently Papanicolaou [10] described cyclic changes in the human vaginal mucosa which can be followed and correlated with ovarian activity.

Stockard and Papanicolaou [11] gave added impetus to the study of cyclic phenomena in the vagina by their discovery of the vaginal smear method in the guinea-pig. Thus by a simple study of the cytologic content of the vaginal fluid it was possible to follow the rhythm of the sexual cycle. No longer was it necessary to sacrifice the experimental animal. This method was quickly applied to other rodents, particularly the rat, in which case the cyclic phenomena were distinctly visible and clear cut in the vaginal fluid content. It was hoped that similar methods could be applied to the higher mammals and primates. In the human female and in monkeys, in which menstruation is the striking phenomenon in the sexual rhythm, relatively little information has been gleaned from the cytologic studies of the vaginal fluid content.

The presence of a cycle in the vaginal mucosa of the higher primates has thus received considerable attention. One group of investigators has studied the vaginal mucosa proper removed at various periods in the cycle in an attempt to correlate these observations with changes in the uterus and the ovaries. Human material accurately identified as to the time interval in the cycle was difficult to obtain. It was almost impossible to

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Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Hitschmann, Fritz, and Adler, L.: Der Bau der Uterusschleimhaut des geschlechtsreifen Weibes mit besonderer Berücksichtigung der Menstruation, Monatschr. f. Geburtsh. u. Gynäk. **27**: 1-82, 1908.

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5. Stemshorn: Normal Monthly Cycle of Human Vaginal Mucosa, Zentralbl. f. Gynäk. **52**: 2387 (Sept. 15) 1928.

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7. Gisbertz, H.: Periodic Changes in Epithelium of Human Vagina, Arch. f. Gynäk. **136**: 362, 1929.

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11. Stockard, C. R., and Papanicolaou, G. N.: The Existence of a Typical Oestrus Cycle in the Guinea-Pig, with a Study of Its Histological and Physiological Changes, Am. J. Anat. **22**: 225-280 (Sept.) 1917.

secure frequent specimens from the same individual. Another group has continued to study the cytologic contents of the vaginal lumen in the human being, the chimpanzee and the rhesus monkey, correlating such changes with the sexual rhythm. We have attempted to combine our study of the vaginal mucosa with that of the vaginal fluid content, as one is entirely dependent on the other, thus associating the whole process with the cyclic phenomena in the entire genital tract.

have been under careful observation for a long period. They breed readily and are physiologically normal. Ovulation is diagnosed by rectal palpation and whenever this is doubtful, by laparotomy. It is questionable whether human material can ever approximate such ideal experimental conditions.

Biopsies of the vaginal mucosa were made at weekly intervals on a large group of these monkeys, a lighted speculum especially constructed for this work being

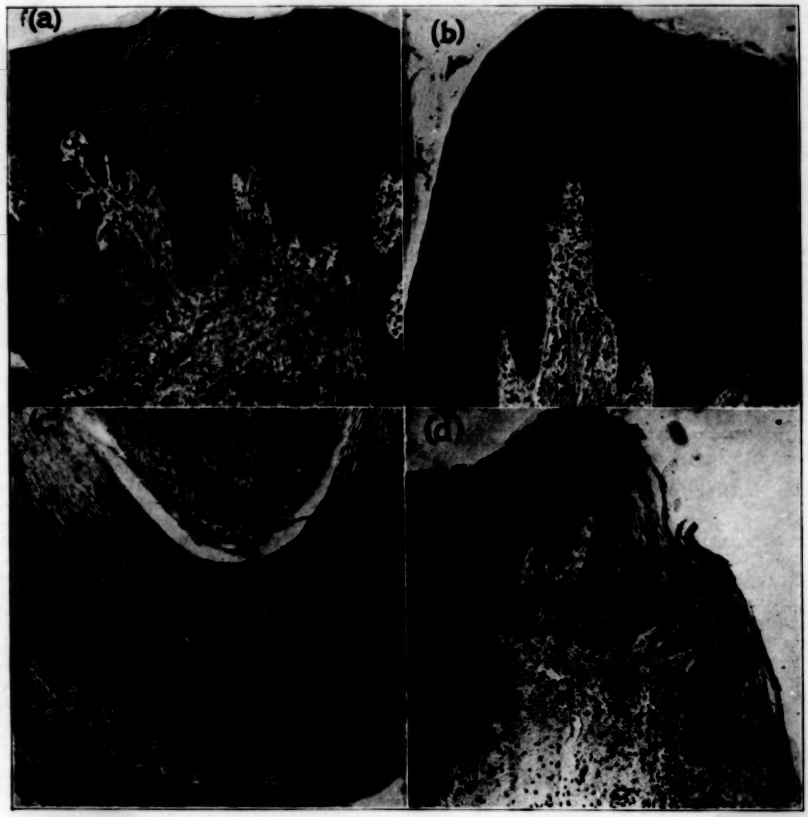

Fig. 1.—Sections, × 100, of vaginal mucosa removed during menstruation, showing typical cyclic activity on the part of the epithelium in the normal, sexually mature monkey; *a*, first day of menstrual cycle; *b*, seventh day; *c*, twelfth day; *d*, twenty-first day.

MATERIAL FOR STUDY

In the human female and her near kin—the higher primates—menstruation has been the outstanding manifestation of sexual activity. In the rhesus monkey the periodic flow occurs at approximately the same time interval as in the human female. It is for this reason that the monkey becomes exceedingly desirable for studies of sexual physiology. The Carnegie colony of monkeys is ideally suited for this study in that they

used. These specimens were immediately fixed, embedded in paraffin, sectioned and stained by various methods. A small portion of each biopsy tissue was fixed in absolute alcohol for glycogen study. The specimens were removed from approximately the same portion of the vaginal mucosa, although other portions of the vagina were studied for comparison. A similar series of biopsies was made on eight animals during the entire period of pregnancy, as well as during the

postpartum period. In none of the animals did we have any difficulty because of this minor procedure.

The cyclic changes in the vaginal epithelium are striking, and while they are not as sharply defined in many respects they resemble those seen in the rodents (fig. 1). The epithelium usually consists of the three layers described by Dierks in the human female. Immediately after menstruation the basalis begins to undergo marked activity. This is noted by a marked proliferation of

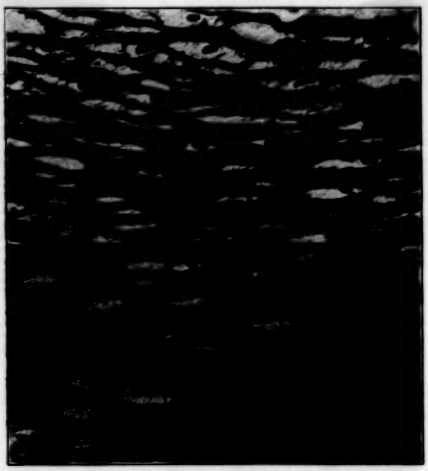

Fig. 2.—Intra-epithelial zone of cornification, or Dierk's layer, showing the granular character of the cells; × 600.

the basal layer of cells. These cells become cuboidal in type, are larger than usual, and stand out because of their better staining ability. The nuclei become larger, stain darker, and show an abundance of active mitosis. Instead of the single layer of cells, several such layers rapidly develop. The functionalis, which has not been completely lost in the previous cycle, begins to grow thicker, owing to an accumulation of cells from the basalis. The cells in this layer are not altered. These are the cells in which retrogressive changes have taken place and they will be lost in the sloughing process. The intra-epithelial zone of cornification, or Dierks' layer, becomes more pronounced as the period of ovulation is approached. This layer increases in thickness. The cells become compressed and stain deeply, although there is little cytoplasm. The nuclei are elongated and stain darkly in a homogeneous manner. Throughout this layer are numerous granules. They are of various sizes, not entirely confined to the cells, and stain with nuclear stains. These granules give the characteristic appearance to this layer (fig. 2).

The activity of the basalis continues to the twelfth or fifteenth day, when ovulation usually occurs. At the time of ovulation the epithelium has attained its greatest thickness, following which desquamation begins. This proceeds by a steadily increasing crumbling away of the surface cells from the functional layer. The cells crumble away individually, in groups, and in entire plaques. This process increases in rate as the menses approach but does not seem to be very marked during the actual flow. Rarely is the entire functionalis lost during this sloughing process. If it is, Dierks' layer may likewise disappear. As a rule, some of the functionalis is retained and Dierks' layer becomes less pronounced, consisting of fewer cells. During this process of desquamation the cells in the basalis remain inactive, mitotic figures are rare, and the basal layer of cells becomes very low and cuboidal in type (fig. 3).

The wandering cells in the epithelium likewise undergo rhythmic variations. In that period of the cycle just before, during and immediately after the menses, leukocytes, chiefly of the polymorphonuclear variety, may be seen in the mucosa. These cells are abundant just beneath the epithelium and come in between the epithelial cells in columns, pushing the cells apart. They are best seen in the basalis, where they stain deeply and apparently are alive. They decrease in number as the functionalis is approached, in which layer they are less numerous and many are apparently dying. There is a progressive diminution until the ovulatory phase is reached, during which they are almost absent, but recur again toward the end of the cycle. The cause of this leukocytic exodus is not known. Hartman [12] does not believe that their function is caused by the digestion of cellular detritus in the

Fig. 3.—Section, × 600, of the upper portion of the functionalis, showing the process of desquamation. The cells break away individually and in plaques, appearing in the content of the vaginal lumen.

vagina, in that the majority are probably dead when they reach the lumen of the vagina (fig. 4).

CHANGES DURING PREGNANCY

Stieve,[13] in his extensive work on physiologic changes in the genital tract during pregnancy, described the

12. Hartman, C.: Studies in the Reproduction of the Monkey Macacus Rhesus, with Special Reference to Menstruation and Pregnancy, Carnegie Inst. Washington, Pub. 433, 1932, pp. 1-161.

13. Stieve, H.: Das Schwangerschaftswachstum und die Geburtserweiterung der menschlichen Scheide, Ztschr. f. mikr.-anat. Forsch. 3:3, 1925.

changes in the vagina. He noted that a marked thickening of the vaginal mucosa occurred, which represented an active proliferation early in the stage and later a growth of the tissue cells. Toward the end of pregnancy the epithelium may reach a thickness of from 450 to 500 microns. This thickening was due chiefly to an edema of the cells and to a less extent to cell division. The individual cells became larger and the cellular bridges wider. He noted that the mitosis diminished after the fifth month, although the epithelium became progressively thicker. The vaginal mucosa was examined by Stieve immediately after delivery. He found that the functionalis had completely disappeared, that the basalis in some cases was likewise extensively destroyed, and that the remaining cells were flattened and pressed together. The extent of the loss of epithelium depended on the length of labor and its character. After a long hard labor only a single layer of

Fig. 4.—Section × 600 of vaginal mucosa removed on the twentieth day of the cycle, showing typical leukocytic invasion of the epithelium.

cells remained in the basalis. In a few cases there was little change in the squamous epithelium. He ascribed all these extensive sloughings of the vaginal mucosa to the mechanical damage of delivery.

In our pregnant experimental animals the vaginal mucosa remained at about the same stage as seen at the time of ovulation. In some of the cases the functionalis was even more marked than in the normal cycle. Dierks' layer became unusually prominent, owing to an increased thickness of this layer and to an increase in the size of the individual cells. The basalis continued to show marked activity and the cells increased in number and in size. The nuclei stained darkly and numerous mitotic figures could be seen in many of them. Mitoses continued until the latter half of pregnancy, when they decreased in number and disappeared completely at the end of gestation. The functionalis continued to show marked desquamation of the superficial layers, such as is seen at the time of ovulation in the normal cycle. This sloughing process continued at about the same rate until after the middle of pregnancy, when it increased in extent. In the functionalis there occurred very large abnormal appearing cells, some round or oval, others oyster shaped, and their nuclei were likewise round and large, and stained poorly. These abnormal cells appeared singly and in groups, and probably represent the so-called "pregnancy cells" of Papanicolaou,[14] to which we will refer again. After the middle of pregnancy the functionalis began to crumble away

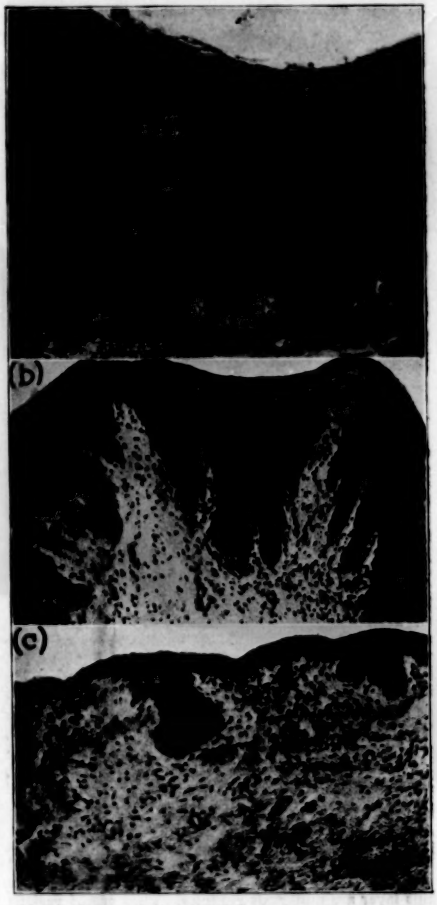

Fig. 5.—Sections, × 100, of vaginal mucosa removed during pregnancy, showing the progressive desquamation and destruction of the vaginal epithelium, so that in *c* only a juvenile type of epithelium remains: *a*, fifty-seven days pregnant; *b*, eighty days pregnant; *c*, ninety-two days pregnant.

14. Papanicolaou, G. N.: Diagnosis of Early Human Pregnancy by the Vaginal Smear Method, Proc. Soc. Exper. Biol. & Med. 22:436-437, 1925.

layer by layer, until it had completely disappeared. In the last weeks of pregnancy Dierks' layer, as well as a good portion of the basalis, likewise disappeared as the result of the more extensive desquamation. In the last weeks of pregnancy all that remained was a few layers of basalis of irregular thickness. On the surface there were present several layers of cells that were elongated in type and compressed with dark staining nuclei, which probably represented a semicornified layer (fig. 5).

This loss of almost the entire vaginal mucosa is a most interesting phenomenon in that it does not represent a mechanical destruction due to the trauma of labor, as Stieve would have one believe, but to some other unknown etiologic factor. It occurred long before the onset of labor and in those monkeys at term that were delivered by cesarean section in which no trauma to the vaginal mucosa could have occurred.

Following delivery the vaginal mucosa was gradually rebuilt to its normal three-layered appearance by the end of the fourth postpartum week. At this time the functionalis, the basalis and the intra-epithelial zone of cornification could be clearly seen. Following this complete restoration the rhythmic activity of the mucous membrane began again. We could not determine whether lactation had any effect on the restoration of the mucous membrane, for in only one case did the young nurse. In this monkey the postpartum restoration of the vaginal epithelium took place in the same way and during the same time interval (fig. 6).

RELATIONSHIP OF OVARIAN ACTIVITY TO THE MENSTRUAL CYCLE

It seems certain that the periodic sloughing of the surface layer of the vaginal epithelium is associated with ovarian activity, probably in the same manner as in the case of the endometrium. In very young girls, before the onset of puberty, the vaginal epithelium consists of a basalis of only three or four layers of cells, which are entirely inactive. This is the typical juvenile epithelium in the young girl and the young monkey. With the onset of ovarian function the three-layered condition is quickly built up. Experimentally, this can be done by the use of theelin. Robert Lewis recently made use of theelin in the treatment of gonorrheal vaginitis in children. He was able to change the juvenile type of vaginal epithelium to the normal adult type by the use of estrogenic substance. As soon as the vaginal mucosa was thus changed, the infection disappeared.

Following the menopause, whether spontaneous or artificially produced, the vaginal mucosa likewise degenerates to the condition seen before puberty. Allen [15] castrated monkeys and followed this retrogressive change in the vaginal mucosa. When it had been completely broken down so that the basalis consisted of only three or four layers of cells, he injected theelin and restored the normal adult type of epithelium. In one of our monkeys, castrated for one year, two weeks' treatment with amniotin likewise completely restored the vaginal epithelium to the normal active type (fig. 7). Dierks [16] recently reported that in a castrated young woman he was able to produce a good functional layer in the vaginal mucosa with 9,000 mouse units of estrogenic substance. In all these instances it can be readily seen that the vaginal mucosa is directly under ovarian influence and as such it must be subject to the rhythmic activity seen in the other mullerian derivatives.

In some of our monkeys cyclic activity on the part of the vaginal mucosa could be demonstrated without the occurrence of ovulation. Anovulatory periods are

Fig. 6.—Sections, × 100, of vaginal mucosa removed during the postpartum period, showing a rapid restoration of the epithelium. At the end of the first month the epithelium has been restored to the normal three-layered appearance: *a*, thirteen days post partum; *b*, twenty days post partum; *c*, thirty-two days post partum.

well known and are quite common in the rhesus monkey. Hartman [17] has demonstrated this many times. During the summer months menstruation occurs regularly in the monkey without ovulation. The changes in the basalis and functionalis, however, are not as marked as when ovulation occurs. Apparently the threshold for

15. Allen, Edgar: The Menstrual Cycle of the Monkey Macacus Rhesus, Contrib. to Embryology No. 98, Carnegie Inst. Washington, Pub. 380, vol. 19, pp. 1-44.

16. Dierks, K.: Experimentelle Untersuchungen an menschlicher Vaginal Schleimhaut, Arch. f. Gynäk. 138: 111-130, 1929.

17. Hartman, C.: Menstruation Without Ovulation in Macacus Rhesus (abstr.), Anat. Rec. 35: 13 (March) 1927.

growth, periodic bleeding and vaginal desquamation are all different, although all these physiologic phenomena are dependent on ovarian activity.

No sloughing of the functionalis occurred in a very long cycle in one of our monkeys. On examination a persistent atretic follicle was found. Apparently this follicle provided a continuous stimulus to the vaginal mucosa so that its normal three-layered appearance persisted for an unusually long time.

In another animal a period of amenorrhea extended over eighty days. During this time the vaginal mucosa had been torn down to the senile type, only three or four layers of cells remaining in the basalis. Here ovarian activity was definitely at a minimum.

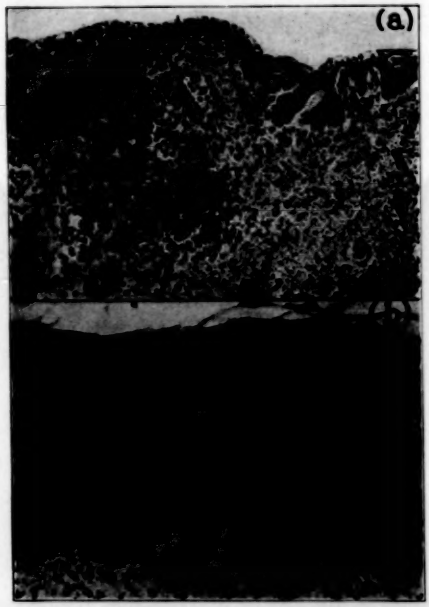

Fig. 7.—a, section of vaginal mucosa removed from a monkey that had been castrated for one year, showing the extensive destruction of the epithelium; only several layers of cells remain in the basalis. b, section of vaginal mucosa removed from the same monkey after it had received injections of estrogenic substance over a period of two weeks, showing the restoration of the vaginal epithelium and the marked activity of the basal cells.

COMMENT

The human female, as well as the monkey, exhibits cyclic activity of the vaginal mucosa as well as the changes during pregnancy, as described.

Papanicolaou recently reported a study of the sexual cycle in the human female as revealed by vaginal smears. He made daily studies of the vaginal contents in twelve women by means of carefully prepared smears. This histologic study was correlated with the cyclic activity in the ovaries of these women. He was able to follow a clear-cut cycle in the occurrence and predominance of the various desquamated cells. These cells were an accurate index of the various stages in the sexual cycle. Ovulation could be determined with a fair degree of accuracy from the contents of the vaginal smears in all these women. At the onset of pregnancy there occurred a marked change in the vaginal smear. The cells and their nuclei became large, with large flat cells predominating early in pregnancy. As pregnancy advanced the cells became smaller and more compact. Highly differentiated forms of cells gradually appeared, some oyster shaped, others remaining round or oval, and were characterized as navicular cells. These cells were identified by Papanicolaou as "pregnancy cells." Leukocytes were unusually abundant. After the termination of pregnancy the vaginal smear undergoes typical modification as the result of extensive desquamation. The cells are distinctly of the outer basal layer, with round or oval forms. Many polymorphonuclear leukocytes are present, and erythrocytes are numerous.

The cellular content of the vaginal lumen is a true index of the changes that take place in the vaginal mucous membrane. However, practically all the epithelial cells found in the vaginal smears have been sloughed off of the superficial vaginal mucosa and are dead cells.

The significance of the extensive denudation of the vaginal mucosa just before labor is difficult to explain. Perhaps the greatly thinned out epithelial layer is better suited for the extensive stretching it must undergo during delivery. It seems, however, that it is a poorer barrier to infection than the normal, thick, three-layered mucosa. Whether the extensive sloughing present in the monkey is likewise present in the human female is still to be proved. We would infer that the same condition exists in the human female, according to the postpartum studies of Stieve, as well as the fact that physiologic sexual processes in the human female and the monkey are very similar. Possible endocrine influences may be present toward the end of gestation, resulting in extensive desquamation and destruction of the vaginal epithelium.

SUMMARY

The cyclic changes in the vaginal epithelium were studied in a large group of female monkeys at the Carnegie Monkey Colony by means of frequent biopsies. These rhythmic changes were coordinated with ovarian activity and ovulation.

We found that the epithelium attains its greatest thickness in the midinterval, consisting at this time of an active basal layer, an inactive functional layer, and an intra-epithelial zone of cornification interposed between these two, which we call Dierks' layer. Following ovulation, desquamation begins and proceeds by a crumbling away of the functionalis, which is usually not completely destroyed. Mitosis begins in the basalis on the first day of menstruation, becoming most marked near the time of ovulation, and then gradually subsides.

A cessation of ovarian activity, such as is seen at the menopause, or an abnormal ovarian activity definitely alters these physiologic changes.

Early in pregnancy the epithelium remains in the same state as is seen during ovulation, consisting of the typical three layers.

Desquamation of the functional layer continues throughout pregnancy but is increased progressively following the middle of pregnancy.

At the end of pregnancy only the basalis remains and is of irregular thickness, in many places of only three or four cells.

In the postpartum period the epithelium is rapidly restored to normal at the end of the first month.

Hormone influences are probably responsible for these phenomenal changes.

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ABSTRACT OF DISCUSSION

DR. F. L. ADAIR, Chicago: It is obvious from the work of Drs. Davis and Hartman that it is at least theoretically possible to build up the epithelium in premature females and in castrates and presumably in postmenopausal conditions. This theory has been corroborated experimentally and therapeutically. This fact may lead to the use of estrogenic preparations for therapeutic reasons in clearing up infection and degenerative changes in the vaginal tract. A word of caution, however, should be interjected, because the action of these endocrine substances is not limited to the vagina, and damage may be done to other structures and endocrinal imbalance may occur. One should be especially cautious in the use of these agents in sexually immature females. The examination of vaginal epithelium secured by smears or biopsy may enable one to diagnose differentially between the vagina of pregnant and of nonpregnant females, between ovulatory and nonovulatory phases. This may be helpful in determining the cause of sterility in a woman who menstruates. In other words, one may be able to determine whether or not a sterile woman who has normal anatomic organs is sterile because of lack of the ovulatory function. These changes are undoubtedly related to the physiologic and protective function of the vaginal lining and may explain the tendency of certain vaginal infections to advance and recede with the menstrual cycle. They are doubtless related to the copulatory mechanism and particularly with the preparation of the vaginal tubes for parturition. One can only speculate with regard to the relation of the immunity of the vagina to infection that may be associated with these changes. The exfoliation of the superficial cells of the vaginal epithelium may well serve as a cleansing process, removing pathogenic organisms contained in the vaginal tube and superficial layers of the vaginal epithelium. The leukocytic barrier laid down in the subepithelial layers in the premenstrual stage and during pregnancy may well serve as a barrier to bacterial invasion of the underlying tissue. The increased vascularization facilitates the mobilization of the defense troops through the blood and lymph streams. This work of Drs. Davis and Hartman is very fundamental and shows the cyclic changes in the vagina and may well be of great practical value as well as explain some of the pathologic changes and clarify some of the phenomena that have previously been noticed but not understood.

DR. M. EDWARD DAVIS, Chicago: I have only one suggestion and that is that more biopsy material be used in studies of the vaginal mucosa. It should not be difficult under local anesthesia to take a small specimen for examination. Many changes in the vaginal mucosa can thus be followed. I am sure that the changes in the vaginal epithelium in the monkey will be found also in the human female. In the monkey the periodic flow occurs at approximately the same time interval as in the human female. It is for this reason that the monkey is especially adapted for this study. We intend to make further studies of the vaginal epithelium in an attempt to correlate the changes in the vagina with those in the ovaries. No one has ever attempted to demonstrate cyclic changes in the cervix, but since it is also a part of the mullerian tract, it likewise must undergo cyclic changes. It is hardly possible that one portion of the mullerian tract will undergo cyclic changes without involving the entire tract. Therefore, further studies with the proper material, such as biopsies from the monkey or the human female, will probably reveal cyclic changes in the cervix as well as in other parts of the mullerian tract.

Mycobacterium Leprae.—In fact it must be stated today, sixty years after Hansen first saw Mycobacterium leprae, that there exists no absolute proof as yet that any investigator during all of these years has actually succeeded in cultivating Mycobacterium leprae in vitro.—McKinley, E. B.: The Etiology of Leprosy, *Medicine* **13**:377 (Dec.) 1934.

THE NECESSITY FOR THE STANDARDIZATION OF THE TREATMENT OF BACILLURIA

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GENEVA, N. Y.

Considering the fact that modern urology has in general made great strides forward during the past two decades, there is still a wide discrepancy within the profession regarding the management of urinary infections, particularly those infections which are due to the colon bacillus group. This discrepancy should actually not exist. Its remedy is obtainable only by effecting some definite standardization in the management of bacilluria in general. My purpose in this paper, therefore, is to summarize briefly the reasons why such a therapeutic standardization is possible as well as advisable.

Needless to say, it has apparently not yet been learned that there is no urinary antiseptic which eliminates the colon bacillus from the urinary tract. Drugs, therefore, are of little value in treating this infection.

It must furthermore be borne in mind that urinary infections due to B. coli rarely ever disappear spontaneously. It was only a few years ago that one of the great urologists said that, in his opinion, when a patient develops colon bacillus infection in the kidneys he is bound to go to his grave with the kidneys still infected. Today, since advances in the management of bacilluria have become so obvious, this statement is decidedly out of order. Approximately 80 per cent of colon bacillus infections in the urinary tract can be completely eliminated by conscientious, practical methods of therapy.

As early as 1924 I [1] reported a small series of cases in which complete recovery occurred by the use of autogenous vaccine, given in rather large doses at five day intervals over a period of from eight to twelve weeks. Many physicians have little use for vaccines. I am not an exception to this belief. However, so far as B. coli infections are concerned, it is perhaps one of the most valuable aids to date.

Continuing to work out more effective measures, because it was obvious that not every case would respond to one form of treatment alone, I began to wonder why nearly all these cases showed infection in one or both kidneys. In fact, all cases were thoroughly studied on the cystoscopic table, and in more than 90 per cent the infection was found to originate above the bladder. Why should this be true? Why also did so many of these cases give histories of chronic constipation, or in fact some intestinal upset, such as diarrhea, prior to the appearance of cystitis symptoms? The reason is, I believe, that the colon bacillus, whose natural habitat is in the colon, is by virtue of its increase in numbers politely invited to seek a new residence and, by gaining entrance to the lymphatic system, finds its way to the kidney, where it is known to become a pathogenic, pus producing organism. With this theory firmly in mind, the treatment then became more of a matter of treating the colon, the focus of infection. It is quite evident that if the number of B. coli in the intestinal tract can be reduced to somewhere near normal, the organisms will cease leaving it to go elsewhere.

Read before the Section on Urology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

1. Crance, A. M.: Treatment of Colon Bacillus Infections of the Upper Urinary Tract with Autogenous Vaccine, M. J. & Rec. **119**: 308 (March 19) 1924.

Three methods may be used, and in fact all three methods should be used, in attacking the problem of correcting the focus: first, by daily enemas; second, by changing the intestinal flora each two weeks with a sudden change in diet—i. e., two weeks high protein, two weeks high fat and two weeks high carbohydrate; third, by the daily use of a good acidophilus preparation, preferably not in milk. These, together with the aforementioned autogenous vaccine, constitute four important measures, which I have termed the "four-point treatment." As reported in 1928,[2] it gave 80 per cent satisfactory results, and this percentage has remained the same. This method of treatment was used long before the various types of the colon group were differentiated.

TYPES OF BACILLURIA

Bacillus coli constitute approximately 80 per cent of all urinary infections, excluding of course the gonococcus. Today it is definitely known that two distinctly separate types of B. coli exist; namely, the Escherichia and the aerogenes varieties. These constitute nearly all the cases of bacilluria. Others, which occur far less frequently, are pseudomonas (B. pyocyaneus) and B. proteus.

Of chief concern in this paper is the management of the B. coli group. First of all, it must be borne in mind that this discussion does not deal with cases presenting surgical complications, such as perinephric abscess or surgical pyonephrosis but rather it is to deal with the type of case in which treatment is considered medical in character.

IMPORTANCE OF DIAGNOSIS

Diagnosis is of primary importance. Samples of urine for culture should always be collected by catheter in the female, and in the male by careful cleansing of the meatus prior to voiding in a sterile container. Cultures will show practically all types of bacillus infections and the coccus group such as staphylococci and streptococci, tubercle bacilli excepted. When B. coli is found, usually in pure culture, the laboratory should go further and subculture the specimen to determine which type is present. A very simple method may be used for determining this. Aerogenes produces gas within forty-eight hours in saccharose, whereas Escherichia does not. Both types form gas in lactose. It is very important, as I will try to point out, to know which type is present before any outline of treatment is attempted. As already stated, I have obtained approximately 80 per cent successful results in the treatment of B. coli infections during the past ten years by the so-called four-point treatment. This method yields results in the aerogenes type practically as well as it does in the Escherichia variety.

Clark,[3] formerly of the Mayo Clinic, and also Helmholz [4] have shown in several recent reports that about four out of five patients presenting infection with Escherichia coli will completely recover by the ketogenic diet treatment. During the past two years, I have been able to obtain approximately the same percentage of recoveries in this type, using the ketogenic regimen. The principle of the ketogenic treatment probably needs little explanation, excepting that the work of Fuller [5] of England has shown that a specific agent (1-B-hydroxybutyric acid) is produced in a ketone urine and that this agent destroys the colon organism. A recent editorial in THE JOURNAL [6] also reviewed in an interesting manner the action of this specific agent. The diet also strives to yield a urine with a p_H somewhere below 5.1. Colon bacilli are destroyed in an acidity of from 5.1 to 4.6. (Normal urine averages approximately from 6.8 to 5.8.) Clark also obtained satisfactory results in seven out of twenty-one cases presenting the aerogenes type. In ten cases of the aerogenes type that I treated, the ketogenic regimen failed in each instance. Therefore, with one worker showing only one out of three patients recovered, and another showing no recoveries, why should the ketogenic diet be considered as a method of choice in treating the aerogenes type?

This is exactly where the standardization of definite therapy enters the picture. Since the Escherichia type of B. coli responds to both the ketogenic regimen and the four-point treatment with approximately equally satisfactory results, one has the choice of either. The ketogenic diet is much the quicker method if it produces the result, from ten to twenty days usually being sufficient. Against the ketogenic diet is the fact that hospitalization is necessary, or at least the patient must go to the hospital for meals, if the utmost cooperation is to be obtained. On the other hand, if the ketogenic treatment fails in this type, the other treatment may be resorted to (cases 7, 8 and 9). Conversely, patients failing to recover with the four-point treatment may completely recover under the ketogenic regimen. I have had one such case (12). Generally speaking, therefore, in infections with Escherichia coli the ketogenic diet, when possible to carry out conveniently, is the method of choice. The other method can always be resorted to if necessary.

For reasons previously stated, the ketogenic diet, in my opinion, is not at all indicated in the aerogenes type of Bacillus coli infections. The percentage of successful results has been too low to warrant the advisability of submitting patients to the expense of hospitalization or dietary measures. The aerogenes type decidedly calls for the four-point treatment. My results with this type have been entirely satisfactory, and in fact I feel that the aerogenes type definitely contraindicates the use of the ketogenic regimen. It has occasionally been necessary to repeat the course of treatment; persistence, until complete recovery, is essential to its success.

Pseudomonas (B. pyocyaneus) infections respond exceptionally well to the ketogenic diet, as do the majority of the remaining types of organisms found less frequently in bacillurias. In the pseudomonas infections, Clark [7] was able to obtain sterile urines from thirteen out of fourteen patients treated.

AUTHOR'S FOUR-POINT TREATMENT

1. Autogenous vaccine, made up 1,000 million per cubic centimeter, is given intragluteally at five day intervals, beginning with 0.5 cc. and increasing each subsequent dose by 0.5 cc. until the dosage of 2 cc. is reached. Usually a course of twelve injections is given.

2. Crance, A. M.: Treatment and Cure of Bacillus Coli Infections of the Kidney and Bladder, Urol. & Cutan. Rev. **32**: 495 (Aug.) 1928.
3. Clark, A. L.: Escherichia Coli Bacilluria Under Ketogenic Treatment, Proc. Staff Meet. Mayo Clin. **6**: 605-608 (Oct. 14) 1931.
4. Helmholz, H. F.: The Ketogenic Treatment of Urinary Infections of Childhood, J. A. M. A. **99**: 1305 (Oct. 15) 1932.
5. Fuller, A. T.: The Nature of the Bactericidal Substance in the Urine of Patients Receiving a Ketogenic Diet, Biochem. J. **27**: 976-982, 1933.
6. The Bactericidal Action of Ketonic Urine, editorial, J. A. M. A. **102**: 1231 (April 14) 1934.
7. Clark, A. L.: Personal communication to the author.

2. Daily enemas are given. The soapsuds enema is used, the size being increased up to 2 to 2½ quarts. This portion of the treatment helps to eliminate an excess of colon bacilli from the intestinal tract, which is the focus of infection.

3. Previous work has shown that Bacillus acidophilus definitely aids in changing the intestinal flora and also that it aids the intestinal tract in its function of elimination. It is prescribed in liquid culture form because in milk it would interfere with the change in diet mentioned in the fourth item.

4. Two weeks of high protein diet, two weeks of high fat diet and two weeks of high carbohydrate are given for the purpose of changing the intestinal flora, which in turn decreases the number of colon bacilli in the colon. It is occasionally necessary to continue on with this diet if the urine still shows positive cultures at the end of the first six weeks.

GROUP ILLUSTRATIONS BY TYPICAL CASE HISTORIES IN BRIEF

The following three cases are used as examples of treatment prior to the time when any differentiation of type of colon bacillus was made.

CASE 1.—Mrs. C. W., aged 53, admitted Dec. 23, 1927, complained of frequency and burning micturition, with considerable dysuria and recent hematuria. Cystoscopy revealed a marked purulent cystitis. The kidney samples in this case, however, were negative. Culture from the bladder showed the colon bacillus. She was placed on the four-point treatment, as described. Ten weeks later there was freedom from all symptoms, the urine was negative for pus cells, and culture was sterile.

CASE 2.—Mrs. J. K., aged 30, admitted Dec. 5, 1927, with an early pyelitis of pregnancy, complained of marked frequency and burning micturition, with marked pain in the right part of the back, encircling the abdomen downward. She had a temperature of 103 F. Cystoscopy revealed thick purulent urine from the right kidney, which showed the colon bacillus on culture; the left side was clear and sterile on culture. The right kidney pelvis in this case was irrigated on only one occasion with 1 per cent mercurochrome. She was placed on the four-point treatment and was free from all symptoms within two weeks. In twelve weeks she was reexamined. The urine was found clear and sterile and she later went on through delivery without further trouble.

CASE 3.—A. H., a man, aged 26, admitted Feb. 14, 1925, was acutely ill, with marked pain in the right kidney region, a temperature of 105.5 and a history of chills for the past two weeks together with bloody urine and frequency, although he had had some bladder irrigations for the past three months. He had passed clots of pus and blood the past week, with considerable referred pain to the penis. This case is especially interesting because the bladder was so terrifically infected that it was utterly impossible to locate the ureteral orifices and, consequently, passing a catheter for drainage or lavage of the right renal pelvis was impossible. Therefore, this could not be used as a factor in treatment, although it was evident that the source of the infection was in the right kidney. The patient was given the four-point treatment immediately and in three days the temperature had dropped to normal. He was discharged from the hospital two weeks after admission, free from symptoms but with a pyuria still present. He continued with the four-point treatment at home, with the vaccine being administered each five days by his home physician. Twelve weeks later he was perfectly well. The urine was free from pus cells and the culture no longer showed growth of colon bacilli.

The following three cases of Escherichia coli infection illustrate beyond doubt the splendid results obtainable with the ketogenic diet.

CASE 4.—W. C., a man, aged 52, admitted Sept. 19, 1932, complained of marked weakness, chills, loss of appetite, marked frequency, urgency and burning micturition. The cystoscopic diagnosis was severe purulent cystitis. Kidney samples were negative. Bladder culture showed a heavy growth of Escherichia coli. The ketogenic diet was started September 20. The same day the urine p_H was 6.3. September 21, 5.5; September 22, 5.2; September 23, 24, 25, 26 and 27, 5.1. On September 27, seven days after treatment was begun, an examination of the urine showed it to be free from pus cells and sterile on culture. There has been no recurrence to date.

CASE 5.—Mrs. T. C., aged 47, admitted Nov. 10, 1932, complained of marked frequency, urgency, painful micturition and hematuria at the onset one week prior. Cystoscopy showed a very marked severe generalized cystitis. Both kidneys and bladder cultures showed Escherichia coli. The ketogenic diet was begun November 11, with a p_H of 5.8, subsequently decreased as follows: November 12, 5.3; November 14, 5.1; November 15, 5.0; November 16, 4.9; November 17, 5.0. Culture made November 17, the seventh day of treatment, showed the urine to be free from pus and culturally sterile. The symptoms had entirely subsided and the patient was discharged as recovered. There has been no recurrence and the culture has remained sterile.

CASE 6.—Mrs. M. B., aged 56, admitted June 21, 1932, complained of frequency and burning micturition, which had been present several months. The diagnosis was bilateral chronic pyelitis and cystitis due to Escherichia coli. The urine showed ++++ pus cells. The ketogenic diet was begun June 27 and ended July 8. The lowest p_H obtained during this time was 5.2, although tests had on several occasions daily showed ++++ diacetic acid and acetone. All symptoms had disappeared and the urine was free from pus cells at the time of her discharge July 9, 1932. She has remained perfectly well.

The following three cases illustrate the successful use of the four-point treatment after failure with the ketogenic diet in the Escherichia type:

CASE 7.—Miss L. C., aged 35, admitted May 5, 1933, complained of frequency and urgency which had been present since January. She also complained of severe constipation. Examination by her home physician had revealed ++++ pus in the urine, and various kinds of internal medication had been prescribed with no relief. Examination revealed a primary cystitis very severe in character, but both ureteral samples were clear and sterile. The bladder urine showed a heavy growth of Escherichia coli. The patient remained in the hospital for three weeks under ketogenic treatment with no relief and with no change in the pyuria. She returned to her home city after having begun the four-point treatment. The treatment was continued by her home physician until early in July, at which time she had recovered symptomatically. She returned, July 31, at my request, for a culture of the urine. It was found free from pus and sterile. Incidentally, the patient returned for another check up May 12, 1934, and again the urine culture was sterile.

CASE 8.—W. G., a man, aged 69, admitted March 6, 1933, complained of marked frequency, with burning and some dribbling. The attack had started about a week prior, during which time he had been at home under the care of his family physician. There had been chills and fever and considerable hematuria for the first five days. Examination of the prostate was entirely negative. Cystoscopy revealed a severe generalized cystitis, and samples from both kidneys showed pus and cultures were positive for Escherichia coli. The ketogenic diet yielded a sterile culture and a complete disappearance of pus cells in seven days. The diet was continued a few more days and the patient was discharged. Within two days there was a recurrence of symptoms and the culture was again positive. March 27 he was again placed on the ketogenic diet for three weeks, taking his meals as an outpatient at the hospital. There was no improvement in the pyuria and cultures remained positive. He was then given the four-point treatment, which he followed very cooperatively for several weeks, and on July 10 the culture no longer showed any colon bacilli and the urine was entirely clear. This patient has had no further recurrence and appears to be in excellent health.

Case 9.—Mrs. B. B., aged 37, admitted Jan. 11, 1933, complained of rather severe pain in the right side of the abdomen and back, which had begun three days prior to admission. The symptoms suggested right ureteral calculus but examination revealed a right pyelitis with a mucopurulent cystitis due to B. coli infection, Escherichia type. A right pyelogram showed definite clubbing of all the calices, with a dilatation of the renal pelvis. There was also evidence of a slight kink at the right ureteropelvic juncture. This was not surgically treated. The ketogenic diet was begun, and on February 2 there had been no improvement in the pyuria and cultures were still positive. The patient was discharged and placed under the care of her family physician, who carefully followed out the four-point treatment. March 4 a culture was made on a specimen of catheterized urine and it was found to be sterile. She had remained perfectly well without further pain or recurrence of the pyuria.

The following two cases are used to illustrate typical examples of results obtained with the four-point treatment in the aerogenes type. (In this type I believe that the ketogenic diet treatment is definitely contraindicated.)

Case 10.—Mrs. L. D., aged 40, admitted May 28, 1932, had severe right renal colic, chills and fever. There had been several severe attacks during the week prior to admission. Examination revealed a right pyelitis, ++++ pus cells and cultures of B. coli (aerogenes type). She was discharged May 30 and began the four-point treatment. She received a total of twelve injections of autogenous vaccine over a period of ten weeks, at the end of which time she was perfectly well and stopped all treatment. August 18 a sterile culture of urine was obtained. There were no pus cells present.

Case 11.—Mrs. A. D., aged 42, admitted Jan. 26, 1933, complained of frequency with nocturia from one to five times and severe pain in the bladder region and dysuria. The present trouble had been gradually getting more severe in character since its onset, several weeks prior. Cystoscopy revealed severe chronic generalized cystitis; ++++ pus and aerogenes type B. coli from the bladder, and ++ pus cells with positive culture from the right kidney. Examination of the left kidney was negative. The four-point treatment was begun immediately. All symptoms had disappeared by April 10, at which time a catheterized bladder sample was free from pus cells and cultures were sterile.

The following case is one in which the four-point treatment resulted in a pus free urine but not a sterile urine on culture. However, hospitalization with the ketogenic regimen resulted in a sterile culture in nine days.

Case 12.—Mrs. S. S., aged 40, seen Dec. 13, 1932, complained of frequency, urgency and burning micturition, with marked pain following voiding. The trouble had begun one week prior, at which time there was hematuria. Six months before examination she had a similar attack and again another attack in September, with a definite bladder irritability existing constantly. The present attack was probably an acute flare up of a previously existing bacilluria. The culture showed a heavy growth of Escherichia coli. The four-point treatment was carried out until May 1, 1933, at which time all symptoms had disappeared and the urine was clear and free from pus cells. The culture, however, showed a heavy growth of Escherichia. Although she felt perfectly well, she was willing to enter the hospital and take the ketogenic treatment in an effort to obtain a sterile urine. Nine days after the ketogenic treatment, cultures of the urine were negative. One culture has been taken since, which again showed no growth. She has continued to remain perfectly well.

SUMMARY OF CASE REPORTS

I have chosen the foregoing examples from a series of more than 250 cases of B. coli infections, simply to illustrate the principle outlined in the paper, which is directed toward the standardization of therapy. An effort has been made to show that the four-point treatment, although occasionally requiring several weeks, yields a high percentage of satisfactory results in either the Escherichia or the aerogenes type. It has also been shown that the ketogenic regimen is indicated only in the Escherichia type, and when results are obtained they are usually quicker than with any other method of therapy. One group of cases illustrates that it has been necessary, in several instances, to complete the treatment by this method after the ketogenic diet had failed.

SUMMARY

The first remark should deal with the importance of bacilluria. Too often is this type of case "passed up" as something inconsequential, to be treated only with urinary sedatives or the supposedly antiseptic preparations. Too often does the physician believe, because the symptoms subside under these remedies, that he has cured his patient. B. coli infections especially may subside sufficiently to warrant this belief. Actually, however, the infection goes on, and sooner or later a "flare up" occurs, at which time it will erroneously be termed a "recurrence." It is not a recurrence in the true sense but rather an acute exacerbation, simply because the case was not carried along to complete recovery at the time of the previous treatment. A cure depends on three things—no more, no less. These are freedom from symptoms, a urine free from pus and an entire absence of bacilli on culture. The culture must be sterile.

CONCLUSIONS

The following conclusions are directed entirely to the standardization of the treatment of bacilluria.

1. The physician should have courage enough to discontinue the use of oral medication with urinary antiseptics. It has previously been proved that they will not yield a sterile culture of the urine.

2. Bacillus coli cultures must be subcultured, since the treatment depends on the type, whether aerogenes or Escherichia.

3. Escherichia coli infections heal very satisfactorily under the ketogenic diet in fully 80 per cent of the cases. When this fails, the four-point treatment is indicated. It is well to remember that the two treatments yield equally good results but that the ketogenic treatment is usually somewhat quicker in effecting a cure.

4. In the aerogenes type of B. coli, the four-point treatment appears to be by far the better method of attack. It will require from eight to twelve weeks of persistent effort, on the part both of the physician and of the patient.

5. Pseudomonas, and other less common types of bacilluria, apparently respond best to the ketogenic treatment.

6. The stubbornness of B. coli infections in general being realized, a complete cystoscopic study of each case, including differential function, elimination of ureteral strictures, and the like, should be made. Pathologic changes that will interfere with the treatment should be known in the beginning. It would seem more advisable for the physician to make such a study before treatment is instituted rather than to find out later why the treatment failed.

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A SIMPLIFIED TREATMENT OF BACILLURIA

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From the work of William Mansfield Clark [1] it has been shown that it is practically impossible to increase the acidity of the urine sufficiently by the oral administration of any drug to inhibit entirely the growth of the colon bacillus. Because of this it was decided to try the effect of altering the food intake. Barborka [2] suggested that the ketogenic diet, which had been used originally by Wilder in the treatment of epilepsy, produced an acidity of the urine considerably above the normal. Previously, Johnson [3] had placed several patients with a bacillary infection of the urinary tract on the ketogenic diet. He noted some improvement in their condition, but the patients were too ill to allow a thorough test of the treatment. About this time Helmholz had noted that the urine of a patient on the ketogenic diet for the treatment of epilepsy remained clear and apparently sterile, although it had been voided into an unsterile vessel and allowed to stand for a number of days.

To a patient who had returned to the Mayo Clinic a number of times for treatment of a persistent bacillary infection of the urinary tract belongs the real credit for making the ketogenic treatment available to the other sufferers of this ailment. During his fourth trip to the clinic in fourteen months he announced that he would stay until his condition was entirely relieved. At this visit, as before, many different types of treatment both local and oral were applied, with only temporary periods of improvement. The culture of the urine showed the infecting organism to be the colon bacillus. July 21, 1931, the patient was placed on the ketogenic diet. In five days his symptoms of burning, frequency and urgency of urination were relieved. In twelve days a culture of the urine revealed the absence of the colon bacillus. Refusing to believe in his good fortune, because of his many periods of temporary relief in the past, he insisted that he be allowed to remain on the diet for ten more days. This patient has been followed for over two years since discontinuing this type of treatment and has not had a recurrence of the urinary tract infection. In August 1931 another patient was placed on the dietary treatment with very satisfactory results. Subsequently, Helmholz put several children who were suffering from infections of the urinary tract on the ketogenic diet and he also obtained excellent results.

In October 1931 one of us reported these first two cases at the staff meeting of the Mayo Clinic,[4] and following this Helmholz presented his results. Since that time, the reports of a number of investigators [5] who have used the ketogenic treatment in chronic urinary infections leave no question as to its definite therapeutic value. We wish to reiterate that urinary sepsis is frequently concomitant with other urologic conditions, such as obstructions, tumors and calculi. Necessarily, the management of these cases must include the early elimination of any such complications.

Up to the present time the ketogenic treatment has required the cooperation of a trained dietitian. In many cases this has necessitated hospitalization of the patient. Robb,[5] reporting a carefully controlled series of cases, says in his conclusions: "The results suggested that the ketogenic diet was an unsuitable form of treatment for outpatient departments." Since accumulated data have shown a definite increase in satisfactory results obtained in this type of treatment compared with those of other types of therapy, it would seem essential to simplify it to permit its application to office practice and outpatient departments.

To do this, we present the following simplified ketogenic treatment, which has been shown from our experience to be applicable to office practice. The diet may be prescribed without detailed dietetic knowledge by the physician and can be prepared in the average home without special dietetic supervision. The menus are so arranged that, regardless of the items selected from the different groups, the daily intake of food will consist of carbohydrates 15 to 20 Gm., protein 35 to 50 Gm., and fat 300 to 325 Gm., with a ketogenic-antiketogenic ratio of approximately 4 to 1. The vitamin deficiency need not be considered, since the patient will be on the diet only a short period of time.

The simplified diet consists primarily of cream (40 per cent fat), mayonnaise, butter, eggs, bacon and vegetables containing 3 per cent carbohydrate. In group A are combinations of eggs and cream; group B gives a number of recipes for salads; group C is desserts, and group D contains the beverages that may be taken. The various items in each group have approximately the same carbohydrate, protein and fat content. The daily menu instructs the patient from which group selections are to be made for each meal.[6]

How is the ketogenic diet effective in eradicating urinary sepsis? Two conditions are necessary. Sufficient concentration of ketone bodies must be present in the urine coincidental with an acidity of the urine of p_H 5.2 or less if satisfactory results are to be obtained. Fuller [5] has shown that levorotatory beta-oxybutyric acid is the ketone body producing the greatest bacteriostatic effect. Helmholz and Osterberg [7] were able to demonstrate the bactericidal effect of urine with a p_H of 5.2 and a beta-oxybutyric acid content of 0.5 per cent. Recent work by Clark, Moore and Harrell,[8] however, indicates that at a p_H of 5.0 and a beta-oxybutyric acid content of the urine up to 1.5 per cent the effect of the urine is not sufficiently bactericidal to inhibit entirely the growth of the organisms. As the average beta-oxybutyric acid content of the urine of an adult patient on the ketogenic diet will not exceed a concentration of 1.2 per cent and the average acidity of the urine will not be greater than p_H 5.0, it is probable that the action of the ketogenic treatment is one of bacteriostasis. It is important that this bacteriostatic

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1. Clark, W. M.: The Final Hydrogen Ion Concentrations of Cultures of Bacillus Coli, J. Biol. Chem. **22**: 87, 1915.
2. Barborka, C. J.: Personal communication to the authors.
3. Johnson, H. W. E.: Personal communication to the authors.
4. Clark, A. L.: The Ketogenic Treatment of Bacilluria, Proc. Staff Meet., Mayo Clin. **6**: 605 (Oct. 14) 1931.
5. Clark, A. L.: The Ketogenic Diet in the Treatment of Urinary Infections, J. Urol. **30**: 193-204 (Feb.) 1934. Band, David; Dunlop, D. M., and Dick, I. L.: Studies in Urinary Infection—Pathological, Therapeutic and Bacteriological, Tr. Edinburgh M. J. **40**: 65-91 (May) 1933. Fuller, A. T.: The Ketogenic Diet: Nature of Bactericidal Agent, Lancet **1**: 853-856 (April 22) 1933. Robb, D. C.: The Ketogenic Diet in the Treatment of Infections of the Urinary Tract, Brit. M. J. **2**: 1158-1162 (Dec. 23) 1933.

6. We are indebted to Miss Gladys Taylor of the Dietetic Department of the University Hospital, Oklahoma City, for helpful suggestions.
7. Helmholz, H. F., and Osterberg, A. E.: The Concentration of Beta-Oxybutryic Acid and the p_H in Bactericidal Urine, Proc. Staff Meet., Mayo Clin. **9**: 46-48 (Jan. 17) 1934.
8. Clark, A. L.; Moore, H. D., and Harrell, D.: Unpublished work at the University of Oklahoma School of Medicine.

effect be continuous and be maintained as uniformly maximum as possible during the entire twenty-four hours. Only in this way will the last organism be washed from the urinary tract.

Experience has shown that the patient who quickly develops and maintains an intense ketosis is greatly benefited in a short time. Ketosis should develop within three to five days. At the end of ten or twelve days, whether or not the results have been satisfactory, a mixed diet should be resumed. Several short courses of the dietary treatment are preferable to one long course. Certain patients will put through the ketone products in the urine much more quickly than others. To maintain a continuous ketonuria it may be necessary to space the intake of fat more evenly. This may be done by supplementary feedings of cream (40 per cent fat) between meals, especially between the evening meal and breakfast. During the treatment the physician should not be alarmed if the patient is nauseated. It may cause the patient to miss one or more meals without interfering with the desired results. Experience has shown that normal exercise and activity will lessen anorexia. Only the normal fluid intake should be prescribed. To force fluids will lessen the bacteriostatic effect by diluting the ketone bodies in the urine.

The Simplified Ketogenic Diet

Group A: Egg Dishes

I. Egg nog

Egg	1
*Cream (40% fat)	6 tblspns.
Water	5 tblspns.
Nutmeg	to taste

II. Scrambled eggs

Eggs	2
Cream (40% fat)	7 tblspns.
Butter	3 teaspns.

III. Egg omelet

Eggs	2
Cream (40% fat)	6 tblspns.
Butter	3 teaspns.

IV. Egg custard

Eggs	2
Egg yolk	1
Cream (40% fat)	7 tblspns.
Vanilla	2 drops

Group B: Salads

I. Lettuce salad

Lettuce	½ head
†Mayonnaise	4 tblspns.

II. Lettuce and tomato

Lettuce	½ head
Tomato	1 small
Hardboiled egg	1 yolk
Mayonnaise	5 tblspns.

III. Asparagus

Asparagus	6 stalks
Lettuce	few leaves
Mayonnaise	4 tblspns.

IV. Combination

Lettuce	few leaves
Celery hearts	2
American cheese (grated)	2 tblspns.
Mayonnaise	4 tblspns.

V. Egg salad

Lettuce	few leaves
Egg (deviled)	1
Mayonnaise	4 tblspns.

Group C: Cream Desserts

I. Bavarian cream

Gelatin	1 teaspn.
Cream (40% fat)	7 tblspns.

Whip the cream. Soak the gelatin in 1 teaspoonful of cold water; dissolve in 2 teaspoonfuls of hot water. Add 2 drops of any flavoring. When cooled, add to cream. Place in mold and chill

II. Gelatin

Make plain gelatin as in I. Use 7 tablespoonfuls of unsweetened whipped cream over it

III. 7 tablespoonfuls of cream, whipped with or without flavoring

Group D: Beverages

Tea, coffee or water with 4 tablespoonfuls of cream. If desired, this amount of cream may be used with 2 cups of the beverage. Use no sugar or milk

Daily Menu

Breakfast	Dinner and Supper
I. One choice from group A	I. One choice from group B
II. One choice from group D	II. One choice from group A or C
III. 8 slices of thin crisp bacon or 4 tablespoonfuls of cream (40% fat)	III. One choice from group D

In some cases it may be impossible for the patient to have specially prepared menus. Satisfactory results will be obtained if one and one-half pints of cream (40% fat) and six eggs are prescribed as the daily food intake. The recipes and suggestions in groups A and D may be used.

Important Instructions to Patient

1. Satisfactory results cannot be obtained unless this diet is followed absolutely as outlined. Even the smallest deviations will ruin the chance for success of this treatment.
2. No food or beverage other than that listed is to be taken.
3. Water may be taken in moderate quantities as desired.
4. The chewing of gum or tobacco is not permitted. Smoking is allowed.
5. No cathartics are to be used other than liquid petrolatum or bitter cascara. Magnesium magma or other sweet cathartics may cause failures.
6. Do not take any medicines unless prescribed by the physician. It may conflict with the diet.

* It is of utmost importance to use extra thick cream containing at least 40 per cent fat. The average whipping cream is only about 32 per cent fat.

† Recipe for mayonnaise:

Egg	1	Have ingredients cold. Beat egg until stiff. Add dry ingredients. Add oil drop by drop, beating constantly. Thin with vinegar to the desired consistency.
Vinegar	2 tablespoonfuls	
Salad oil	1 pint	
Salt	2 teaspoonfuls	
Mustard	1 teaspoonful	
Pepper	few grains	

DAILY TESTS

Evidence of ketosis is based on the test for diacetic acid in the urine. If it is present, equal parts of a 10 per cent aqueous solution of ferric chloride and the patient's urine give a port wine color. It must be remembered that a patient who is taking acetylsalicylic acid will give a false positive test. The tests for diacetic acid and acidity of the urine should be made daily. Herrold[9] suggests a most useful procedure for an approximate measure of the acidity, which may be quickly and easily done in the office. To 20 drops of the patient's urine, one drop of 0.04 per cent solution of chlorphenol red is added. If the color of the urine remains the same, it is safe to assume that the acidity is p_H 5.2 or less. After the addition of the indicator, if the solution becomes faintly pink or red, the acidity is above p_H 5.2 and indicates that further measures for acidification of the urine will be necessary to obtain satisfactory results.

A stain of the urine sediment should be made every other day. After three tests have shown that the bacillus is apparently no longer present in the urine, the treatment may be discontinued. The final test, of course, is whether or not the bacillus is found in the urine after the patient has returned to a general mixed diet and the ketone bodies have disappeared from the urine. When one can follow the progress of the patient conveniently, microscopic examinations of the urine will eliminate the need for cultures as the final test of a satisfactory result.

DRUGS

In prescribing the simplified ketogenic diet, we have found it advisable to give no oral medication until ketone bodies have appeared in the urine. At that time, if the acidity of the urine is above p_H 5.2, it may be advisable to give ammonium chloride orally to increase its acidity. Ammonium chloride 12 drachms (47 Gm.) in 8 ounces (240 cc.) of water makes a solution of which 2 fluidrachms (8 cc.) in a glass of water may be given after each meal and at bedtime. This medication may upset the gastro-intestinal tract, in which case 15 grains (1 Gm.) of the drug is given every two hours for six doses. The 15 grains is prepared in the form of two enteric coated tablets, each of 7½ grains (0.5 Gm.).

In some cases tests will indicate that sufficient acidity has developed but that the percentage of ketone bodies in the urine is insufficient to produce the necessary bacteriostatic action. In such an instance, the oral administration of methenamine may increase the bacteriostatic power of the urine to a point at which the organism will be eliminated.

LOCAL TREATMENT

Hydrostatic lavage of the bladder with 1:2,000 solution of acetic acid or 1:8,000 solution of potassium permanganate may be instituted; but excellent results have

9. Herrold, R. D., and Ewert, E. E.: A Simplified Test for the Determination of Approximate Acidity of Urines, Urol. & Cutan. Rev. 37:607 (Sept.) 1933.

been obtained without lavage, particularly in women. It should be remembered that the mechanical and chemical irritation of the catheter and lavage may offset the relief afforded by the ketogenic treatment. In male patients, a gentle massage of the prostate gland every second day is given to eliminate this as a focus of infection. In a number of cases in which there are resistant or recurring infections, urethroscopy may reveal dilated prostatic ducts leading from small chronic abscesses. As organisms from these foci may constantly reinfect the urine, drainage from such regions should be obtained by cystoscopically enlarging these ducts, as described by Thompson.[10] In women, urethral cysts and small infected urethral glands should receive careful attention.

Frequently the coccic type of infection may be associated with the bacillary type. In these cases a short course of neoarsphenamine may be helpful; an intravenous injection of 0.3 Gm. is given every five days for from four to six doses.

In prescribing the ketogenic treatment it must be remembered that the bacteriostatic agent must pass through the kidney. Poor renal function, particularly if unilateral, is a contraindication for this type of treatment. In carefully observed cases it has been found that the ketone bodies will be largely excreted through the kidney with good function. There are two groups of cases for which we have no explanation as to the possible reasons for unsatisfactory results. One group will not develop a ketonuria, while in the second group the p_H of the urine remains high, although large doses of some acidifying agent are administered.

SUMMARY

Applied in short courses, the simplified ketogenic treatment of bacillary infections of the urinary tract may be prescribed by the physician in the office or in the outpatient department with very satisfactory results.

119 North Broadway.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. CRANCE AND DRS. CLARK AND KELTZ

DR. WILLIAM P. HERBST JR., Washington, D. C.: Both presentations have outlined excellent plans of treatment. Dr. Crance has presented a combination type of treatment consisting of the alternating forms of diet, treatment of the colon and vaccines, which in his hands has unquestionably been very satisfactory. I haven't had any experience with this treatment. It has been generally accepted that lavage of the colon is satisfactory in aiding in the treatment of chronic urinary infections, even when dependence is placed on urinary antiseptics. Specificity of the vaccine used is a rather important phase of the problem. To retain specificity, cultures should be young and made up into vaccine very rapidly, so that they will have a more satisfactory effect. In regard to the ketogenic diet as outlined by Drs. Clark and Keltz, the greatest value is in widening the number of patients to which the treatment is applicable. They have presented an ambulatory treatment that can be outlined in the office and followed in the home. Any treatment that will allow the discontinuance of instrumentation of the bladder is a tremendous boon in itself. That is one thing which this ketogenic regimen does. I want to say something about the types of relative obstruction that cannot be remedied by any known means. I refer to cases in which there are large dilated kidneys and ureters as a result of neurogenic or chronic infection. The drainage in these cases cannot possibly be improved and for that reason they have not responded well to the accepted forms of treatment. In this particular group it is certainly a great boon to be able to clear up the infection. How does the ketogenic diet produce its effect? Is it due entirely to the change in the p_H and to the changes in the percentage of beta-oxybutyric acid? There are some patients in whom the p_H fails to come down to the desired point, and there is no appreciable amount of the beta-oxybutyric acid, but who nevertheless are definitely relieved and improved. There must therefore be some other factor in the problem besides the p_H and the beta-oxybutyric acid. I don't know whether it is on the basis of vitamin content of the diet or not, but I do feel strongly that there must be some other factor.

DR. CLIFFORD J. BARBORKA, Chicago: There is a question in my mind whether the bactericidal property from the beta-oxybutyric acid alone sterilizes the urinary tract or whether this, combined with other factors from a ketogenic regimen, acts as the sterilizing agent. I would emphasize two points: first, not to be too critical nor on the other hand too enthusiastic in the possible application of diet in the treatment of disease. There are a great many possibilities that are going to be developed from the studies of the influence of food and its possible interreactions on the tissues of the body. Second, if the simple qualitative method such as Drs. Clark and Keltz have presented can be taught to patients in office practice so that it will produce an adequate ketosis to be bactericidal in a high enough percentage of cases, it will be a most valuable aid in treating urinary infections. It is indeed gratifying after working many years with the ketogenic diet, first in epilepsy, then in migraines, with none too great a response and without a tremendous percentage of enthusiastic results, to find that my suggestion of its use in urinary infections is meeting with such satisfaction in a new field of application. I think that one point which I observed years ago should be mentioned; namely, that approximately 25 to 30 per cent of the women in my early application of the ketogenic diet to epilepsy had a cessation of the menstrual period. There has been experimental work on animals in this country and abroad in the study of the influence on the estrous cycle of a vitamin B deficient diet which produces a cessation of the estrus. The time necessary to use the ketogenic diet in urinary infections is so short that deficiencies are hardly to be considered; but this can be compensated by the use of one or more of the various products of vitamin B concentrates that are on the market.

DR. HENRY F. HELMHOLZ, Rochester, Minn.: Since Dr. Clark and I started working on this subject, it has been largely a matter of a qualitative determination of ketosis, and although we were able to determine that it took ketosis of a certain degree and a p_H of a certain intensity, we did not know until recently what the actual qualities were that were necessary for bactericidal action. I should like to emphasize that ketonurine is bactericidal and not merely bacteriostatic. When ketonurine kills off colon bacilli and staphylococci in six hours, I think it is right to speak of the bactericidal power of such urine. What is the concentration of beta-oxybutyric acid and what is the p_H necessary to produce bactericidal urine? We have been working on that question for some time, and as you possibly saw in a recent publication by Dr. Osterberg and me, 0.5 per cent of beta-oxybutyric acid is necessary and a p_H of less than 5.5. The higher the concentration of beta-oxybutyric acid, the greater the bactericidal power of the urine. The lower the p_H, the greater the bactericidal action of the urine. By a rather simple test, which can be made by any one in his office in six minutes, a concentration of 0.5 per cent beta-oxybutyric acid can be determined, so that it is now a simple thing to know whether conditions are right for bactericidal action of the urine. Streptococcus faecalis, or Streptococcus lacticus, is the most difficult one to kill and that Bacillus coli, Bacillus lactis-aerogenes and Bacillus proteus are about equally difficult or equally easy to kill. Bacillus proteus responds very much more than the other two to a urine of low p_H. In some instances we have found that a normal urine with a p_H of 4.8 will kill, in twenty-four hours, all these organisms, that Bacillus lactis-aerogenes needs a very much lower p_H, and that it sometimes will grow even at a p_H of 4.6 and 4.5, and that the urine with a low p_H is very much more difficult to produce in the presence of infection due to Bacillus lactis-aerogenes. Among children, we have found no difference between the ease with which we could kill Bacillus lactis-aerogenes and Bacillus coli. In a number of instances we have been able after six meals on the ketogenic diet to obtain a sterile urine in cases of infec-

10. Thompson, G. J.: The Treatment of Chronic Abscesses of the Prostatic Duct, Proc. Staff Meet., Mayo Clin. 8: 219-220 (April 12) 1933.

tions with these organisms. There will be a number of patients who cannot be affected by the ketogenic diet, those in whom the kidney can no longer excrete a urine high in ketones and of low p_H. In a recent case in which the blood contained 66 mg. of beta-oxybutyric acid per hundred cubic centimeters, we were never able to get a concentration of beta-oxybutyric acid in the urine greater than 0.1 per cent. I think an even simpler mode of securing increased ketosis in the urine will be by feeding beta-oxybutyric acid directly. Unfortunately, at present, it is too expensive to be used in this way.

DR. ANSON L. CLARK, Oklahoma City: Dr. Crance is to be congratulated for having pioneered in attacking infections of the urinary tract with dietary measures. I have particularly appreciated his cooperation in confirming the results I have reported. There has been a lot of discussion here today about different bacillary organisms with names that must be confusing to many. Those attempting to apply this simplified treatment will probably do well not to complicate the procedure by trying to classify the organisms. The object of our paper was to simplify the attack on this type of urinary tract infection so as to make it more generally applicable. Highly trained laboratory technicians sometimes have difficulty in classifying the bacteria. Dr. O'Conor has just said that one week his technician will say "this is an aerogenes bacillus" and a few days later will decide that the organism found in the urine of the same patient is the colon bacillus. The results obtained from this simplified treatment may not be as satisfactory as when one has the assistance of trained dietitians and laboratory technicians. However, this simplified treatment should reach and benefit a greater number of patients.

DR. ALBERT M. CRANCE, Geneva, N. Y.: I have little to add, except to refer to the remarks of Dr. Helmholz. He made the statement that it was necessary in the aerogenes type to obtain a p_H somewhere around 4.5 or 4.4. I have been at this thing good and hard for the past two years, and I think the lowest obtained was 4.7. That is why I can't see why the aerogenes type can be treated by this method.

MODERN STATE HOSPITAL TREATMENT OF THE PSYCHOTIC

AN ATTEMPT AT AN EVALUATION OF PRESENT AND FUTURE TRENDS

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The modern state hospital is a specialized mechanism for the treatment of psychotic patients. A portion of this treatment consists of separation from an environment in which the individual has failed to adjust, together with his removal to one which is plastic in its various degrees of simplification to fit reduced powers of adaptation. In this sense the state hospital consists of a series of treatment situations, rather than of structures, and is dynamic, rather than static, the interrelationship of patients, doctors, nurses and attendants being of more importance than the character of the buildings.

Out of years of psychiatric experience, certain desirable physical facilities for the promotion of therapy have evolved, so well standardized as to require no mention here. It is probable that improvement and recovery time diminish in rather direct ratio to any decrease in recognized minimum floor space requirements.

An adequate professional staff carries at least one physician for every 150 patients and includes a pathologist and a psychoanalyst. Provision should be made for interns, together with their proper instruction, and for resident and research associates. Of this, more will be said later. Registered nurses should number at least one for every 100 patients, in addition to the supervising and teaching staff; receiving hospitals, medical and surgical wards, infirmaries, tuberculosis pavilions and special treatment wards, to be staffed by registered nurses and pupils of the training school. The latter should train only high school graduates, and these for registry, with general hospital affiliation as required. Illinois considers it undesirable to train "nurses" who are not eligible for registration. There should be a nurse or attendant for at least every eight patients (on a forty-eight hour week basis, which will soon become universal) with required training courses for all and elective courses for the grade of charge or certified attendant.

The presence of other personnel who are essential to treatment, including dentists, psychologists, psychiatric social workers, occupational therapists, recreational directors and dietitians, is assumed without discussion here.

INFLUENCES ANTIPATHETIC TO INTENSIVE TREATMENT EFFORT

Injected into the hospital situation there are certain antipathetic influences that have their repercussions on patient treatment. Foremost of these destructive tendencies is the disheartening absence of unitary etiology and classic pathologic changes in those psychoses which furnish over a third of first admissions and two thirds of the resident population. Thus ignorance, which should merely challenge scientific curiosity and activity, too frequently furnishes an easy rationalization of their opposites. Pessimistic attitudes of older staff members contaminate newcomers before their insight becomes keen enough to penetrate the various disguises of envy, indolence and incompetence. Lack of team work is pernicious; the blame for it, in hospitals free from political appointees, lies at the door of the superintendent and his first assistants. There are few men who will not gladly work with the group under competent leadership.

Too often the management fails to make liberal time allowances for attendance on scientific meetings and to encourage spontaneous or assigned investigative work in every reasonable way. Few states are definitely committed to a promotional system based on professional merit. State welfare departments do not often bestow an honor, a grant of money for special study or an extended leave of absence with pay for outstanding work. Lack of appreciation retards or stunts the professional growth of many good men who fall just short of being sturdy pioneers. Cooperation between hospitals in the same state is rather uncommon—a situation that is doubtless a vestigial remnant of the days when each hospital, like a feudal barony, was isolated, fearful of outlanders and jealous of interference.

A most important discouraging influence on therapeutic effort arises from a failure to visualize treatment and its results for the benefit of the staff as a whole. Many state hospitals do not keep open books on their various forms of therapy. Physicians too often flounder about in their separate areas of endeavor without accurate knowledge of one another's accomplishment and without even arriving at clearly defined conclusions concerning their own results. We suggest daily journal entries of treatment, posted weekly into

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a classified treatment file, from which the results of various types of therapy may rapidly be taken off as occasion requires.

SOURCES OF THE THERAPEUTIC DRIVE—THE HEILWILLEN [1] OF THE STAFF AS A UNIT

The professional and personal requirements of staff physicians cannot well be standardized beyond B+ scholarship, adequate internship, professional interest and a well balanced personality, though "plus values" are naturally most desirable. Given this substratum, a man may become a fairly competent, though not an accomplished, psychiatrist in three years—in two if he is an interested, intelligent and well compensated introvert. A judicious admixture of extroverts, with a broad medical and surgical background, is most desirable.

The impetus of an attack on the treatment problem of the psychotic derives primarily from the medical schools and their psychiatric institutes by way of adequate undergraduate and postgraduate training, the affiliation of staff men with the schools as junior faculty members, psychiatric internships and residencies, special training periods for staff men, and the encouragement of research work in the hospitals by graduate students in biochemistry, anthropology, sociology, psychology and psychiatry. Recently Illinois has developed an educational research council, composed of the heads of the departments of neuropsychiatry of the various medical schools, appointed by the governor to advise with him on matters pertaining to the professional work of the state hospitals. The stimulus that such a group may give to therapeutic effort requires no extended comment.

State hospitals must deal with psychotic patients in large groups so far as ordinary care is concerned, but each patient is a person to be studied and prescribed for individually; each represents a summation effect of appalling extent and intricacy. Staff conferences, if not thus oriented, become futile diagnostic rituals. We confess that Bleuler's [2] conception of schizophrenia as "a physical illness with a lingering course" with "a superstructure of psychogenic origin determined by the patient's experiences" carries considerable weight at Elgin. Also we feel that the search for physical determinants of mental disorder is a hopeful, stimulating endeavor. This receptive attitude does not, however, to our mind connote a drive solely in the direction of "detoxication," since we are quite aware of the problems of constitutional inadequacy of the endocrines and of the autonomic nervous system, and welcome psychoanalytic interpretations, along with the possibility of morbid physical reactions to pathologic mental states. We agree with Conn [3] that "what we shall do with the facts he [the patient] presents is our major problem and always will be," if by these facts "of the patient's doings and his sayings" we conceive the dynamics of the body-mind organism as a whole. Although major emphasis at present is placed on psychic mechanisms, it is still distinctly possible that the exact mental content of a schizophrenic patient may some day assume somewhat the same status as the hallucinations of the alcoholic addict or the psychic reactions of a patient with dementia paralytica.

Adequate laboratories are obviously indispensable. An autopsy rate of 50 per cent is possible. The effect of frequent autopsies and pathology conferences on diagnosis and treatment is inestimable. A competent pathologist, together with an outspoken psychoanalyst, will keep any staff alive to its responsibilities. Experienced neuropathologists are often difficult to secure, but there should be at least one, with an adequate laboratory staff, available to each state service, together with as many more as possible.

TREATMENT: CLASSIC PROCEDURES

Thus far we have briefly stated what we believe to be the principal conditions and circumstances under which treatment may be carried out. We continue with a summary of what may at present be considered the "back log" of accepted state hospital therapy:

1. Perhaps the oldest of all treatments for psychotic patients, if one may call it such, is mechanical restraint. The practical abolition of restraint in the modern state hospital is a very positive contribution to therapy. We find at Elgin that a hospital of 4,300 patients, with a reception service of 150 a month, need carry an average of but one or two patients in restraint daily, principally for surgical reasons. Seldom need a patient be confined in a locked room. Very probably some hospitals do better than this, and others, perhaps, not so well.

2. Psychotherapy is a treatment as old as the physician-patient relationship itself. We cannot possibly dissect its ramifications from out the vast mass of contacts which the patient makes with his environment during his hospital sojourn. Its immanence and its directed use have often been commented on. We appreciate the light thrown by psychoanalysis on mental mechanisms, but we do not look to it for the cure of a noticeable percentage of psychotic patients, nor can we accept the proposal that without the use of psychoanalysis there can be no psychotherapy. We believe, as does Schilder,[4] that "conversation will often substitute for free association methods," and that the community life of the hospital situation, carefully readjusted from time to time by a discerning physician, strengthens the ego system by diminishing the sense of isolation and facilitating a return to reality.

3. As restraint was done away with, occupation emerged, first as a necessity and then as a recognized mode of treatment. Directed occupation now holds a secure place in the therapy of mental disease, almost too secure, in view of the fact that its practice tends to become ritualistic in the absence of thoughtful medical attention. Seldom are there enough well trained aides, and only occasionally a staff physician, sufficiently interested to carry it on properly. There is a tendency to consign patients to this treatment without careful direction and follow up. The time has come to bridge in state hospitals the arbitrary gap between occupational therapy and industrial occupation with a system of promotional employment, combining the two and making use of trained foremen in the key positions of carefully directed industries.

4. Hydrotherapy, ancient in origin, is most useful but too often misused as a form of restraint with therapeutic sanctions. It is easily prescribed; its effects are too seldom studied. We question how many patients

1. Staehelin, J. E.: Somatische Therapie der schweren Psychosen innerhalb und ausserhalb der Anstalt, Schweiz. Arch. f. Neurol. u. Psychiat. **30**: 205, 1932.

2. Bleuler, E.: The Physiogenic and Psychogenic in Schizophrenia, Am. J. Psychiat. **10**: 203 (Sept.) 1930.

3. Conn, J. H.: The Concept of Dementia Praecox, Am. J. Psychiat. **12**: 1039 (March) 1934.

4. Schilder, P.: Principles of Psychotherapy in the Psychoses, Psychiat. Quart. **5**: 423 (July) 1931.

treated in this fashion are actually benefited by their aqueous contacts per se.

5. Only a brave or foolish man would venture to speak ex cathedra of sedation in a state hospital. Unquestionably the reduction of physical restraint and seclusion has increased the demand for chemical restraint. Although hydrotherapy has found its widest application in the excitements, sedation by drugs is often the wiser choice.

6. Exercise, recreation and directed group activities contribute largely to resocialization. Freedom to go and come at will on the hospital grounds strengthens the ego. At least 15 per cent of any ordinary hospital population should enjoy this privilege.

7. The modern state hospital provides physical as well as mental examinations for its patients each six months—something which the medical profession for many years has endeavored to do for the population at large without much success. Surgery does not often remove psychotic symptoms, but the patient who has been well operated on, other things being equal, improves or recovers more rapidly than he or she otherwise would have done. The incidence of tuberculosis in state hospitals necessitates segregation and proper treatment of active cases and the continued observation of quiescent ones. Pretentious units are unnecessary. Repeated roentgen examinations, determinations of blood sedimentation rates at intervals of two months, and a three-day clinical observation period every two or three months for a number of years informs us of reactivation in arrested cases. A monthly list of weight losses of the entire hospital population is a distinctive health measure, screening out patients who are failing from whatever cause.

8. Malaria therapy of dementia paralytica has become a classic procedure. Elimination of subjects presenting definite contraindications, repeated blood counts and hemoglobin estimation, together with nonprotein nitrogen determinations, the free administration of dextrose, orally as well as intravenously, and immediate interruption of treatment, when indicated, has held our death rate well below 2 per cent, as the result of this therapy.

9. The state hospital is merely a highly specialized community situation, an integral part of the social group it serves. Out of this conception and its economic implications has arisen a successful effort to follow up patients while they are at home on probation or boarding out on the Gheel plan.[5] And inevitably as a further development in this direction comes the effort to assist various individuals to make a community adjustment without first requiring of them a course of training and treatment in the hospital situation itself; i. e., commitment. Thus flying squads of psychiatrists, social workers and psychologists, working out from the hospitals, examine problem cases and advise teachers, welfare organizations, judges and physicians concerning their disposition. This is a rational and inevitable undertaking but apt to arouse anxiety and antagonism in the medical profession of some localities.

RECENT AND MORE SPECULATIVE TRENDS

The elimination of evident, together with the search for occult, foci[6] of infection in the hope of favorably affecting abnormal mental states still beckons us on despite discouraging reports to the contrary. The large intestine continues to be an object of grave suspicion. We question the alleged demonstration of hepatropic and neurotropic colon bacillus toxins,[7] yet from time to time we use vaccines prepared from the intestinal flora, with some apparent success. Colonic irrigation, aside from its detoxifying effects, often is markedly sedative. Tonsils, teeth and prostate must be kept constantly in mind, as a search for obscure pathogenesis is made.

Years ago Kraepelin and Wagner-Jauregg considered the psychiatric significance of the ductless glands. Since endocrinology in the treatment of nonpsychotic patients still contends with a baffling constellation of interrelated phenomena, it is not surprising that thyroid therapy, in judiciously selected cases, is the only effective hormone treatment of the psychotic to emerge thus far,[8] and even here we have not been especially fortunate at Elgin.[9] The fact that young amenorrheic schizophrenic patients excrete excess amounts of the follicle-stimulating factor, comparable to those excreted by climacteric controls,[10] may have psychiatric significance. Thus far we have been disappointed in pituitary treatment. However, we continue unabashed with endocrine therapy, always hopeful that tomorrow may bring the happy answer.

Prolonged sleep, *dauerschlaf*,[11] with or without the addition of other so-called nonspecific methods, is a most important therapeutic procedure. Although pioneered nearly fifteen years ago in Europe, it has been reported on infrequently in this country. Unfortunately, the user of this therapy must choose between the Scylla of light sleep with attenuated results and the Charybdis of deep narcosis with better results but occasional fatalities. The technic is exacting; the personnel must be ample and intelligent. The administration of insulin[12] with dextrose to relieve acidosis and the use of coramine as a cardiac and respiratory stimulant have increased the margin of safety.

The quantitative and histochemical deficiency of catalytic iron in the cortical ganglion cells of schizophrenic patients,[13] plus a direct but temporary stimulation of the nervous mechanism, may explain the fleeting effects of carbon dioxide and oxygen mixture obtained by most reporters.[14] Thus far this effort has not emerged from the research stage. Ours has been the ordinary experience with the barbiturates.[15] Given intravenously they

5. Crockett, Helen M.: Boarding Homes as a Tool in Social Case Work with Mental Patients, Ment. Hyg. **18**: 189 (April) 1934.

6. Kopeloff, Nicholas, and Kirby, G. H.: Focal Infection and Mental Disease, Am. J. Psychiat. **3**: 149 (Oct.) 1923.

7. Baruk, H.: Catatonie, sommeil pathologique et onirisme par intoxication colibacillaire; recherches cliniques et expérimentales, Paris méd. **2**: 278 (Oct. 7) 1933; La catatonie expérimentale colibacillaire et les psychoses colibacillaire; les troubles psychomoteurs determinés par la toxine neurotrope colibacillaire dans la série animale et en clinique humaine, Presse méd. **41**: 1588 (Oct. 14) 1933.

8. Hoskins, R. J., and Sleeper, F. H.: Thyroid Factor in Dementia Praecox, Am. J. Psychiat. **10**: 411 (Nov.) 1930.

9. Hutton, J. H.; Brandon, R.; Read, C. F., and Nerancy, J. T.: Endocrine Dyscrasias and Mental Disorders, Illinois M. J. **64**: 242 (Sept.) 1933.

10. Saethre, H.: Sexualhormone bei Geisteskranken, Klin Wchnschr. **12**: 1409 (Sept. 9) 1933; Prolanausscheidung im Harn, ibid. **12**: 1727 (Nov. 4) 1933.

11. Klaesi, J.: Ueber die therapeutische Anwendung des Dauerschlafes mittels Somnifen bei Schizophrenen, Ztschr. f. d. ges. Neurol. u. Psychiat. **74**: 557, 1922. Mueller, Max: Die Dauernarkose mit flüssigem Dial bei Psychosen, ibid. **107**: 522, 1927. Lutz, J.: Ueber die Dauer narkose in der Psychiatrie, ibid. **153**: 91, 1929.

12. Quastel, J. H., and Stroem-Olsen, R.: Glucose-Insulin Administration in Prolonged Narcosis, Lancet **1**: 464 (March 4) 1933.

13. Freeman, Walter: Deficiency of Catalytic Iron in the Brain in Schizophrenia, Arch. Neurol. & Psychiat. **24**: 300 (Aug.) 1930.

14. Loevenhart, A. S.; Lorenz, W. F., and Waters, R. M.: Cerebral Stimulation, J. A. M. A. **92**: 880 (March 16) 1929. Langenstrass, K. H., and Buchman, E. F.: Stupor in Zirkulaeren und schizophrenen Psychosen: Versuch einer aktiven Behandlung, Ztschr. f. d. ges. Neurol. u. Psychiat. **135**: 83, 1931. Solomon, H. S.; Kaufman, M. R., and d'Elseaux, F.: Some Effects of Inhalation of Carbon Dioxide and Oxygen and of Intravenous Sodium Amytal on Certain Neuropsychiatric Conditions, Am. J. Psychiat. **10**: 761 (March) 1931. Hinsie, L. E., and others: The Treatment of Dementia Praecox by Continuous Oxygen Administration in Chambers and Oxygen and Carbon Dioxide Inhalations, Psychiat. Quart. **8**: 34 (Jan.) 1934.

15. Ettelson, A.: The Use of Sodium Amytal in the Psychoses, collected and Contributed Papers, Elgin State Hospital, December 1932.

at times effect an extraordinary rapport with inaccessible patients.

"Nonspecific" therapy embraces the use of a vast number of protein and nonprotein substances. Its indications and applications remain purely empirical. Whatever the modus operandi may be—pyrexia, somatic protein disintegration, changes in acid base equilibrium, colloidal alterations, activities of reticulo-endothelial cells, mobilization of cholesterol, quickening of metabolism—the conclusion seems possible that there is one common leverage: an action on the autonomic nervous system with an "omnicellular protoplasmatic activation" [16] accompanied possibly by reinflammation of the originally affected organs. Our best results with fever —and occasionally these are startling—have been secured in the more recent cases. However, we are not enthusiastic and agree with the more conservative statements in the literature (collected reports of 1,795 cases of fever therapy in schizophrenic patients, with 10 per cent of recoveries and 30 per cent of improvements [17]).

The electrical cabinet,[18] the electrical heat blanket [19] and similar devices, as well as diathermy [20] and radiothermy,[21] are valuable in the treatment of dementia paralytica if burns can be avoided. However, we are not convinced that these contrivances are superior to biologically induced fever. The use of typhoid vaccine has received some fresh impetus with the use of the split, or double dosage, method. Negroes, notoriously resistant to malaria, do well with this technic, which produces temperatures well above 106 F. We make free use of a suspension of sulphur in oil, injected intramuscularly.[22] A course of from six to eight injections often carries an excited patient along with mild temperature reactions until a course of malaria or other heat therapy can be instituted. Our experience with continuous forced spinal drainage,[23] with and without the use of hypotonic solutions intravenously, has been too small to merit comment. Repeated withdrawals of large amounts of liquor, together with substitution of air, occasionally appears to be useful in the excitement of dementia paralytica as well as in other types of excitement.

State hospital dietaries have in the past been considered principally from the standpoint of weight maintenance. An era of nutritional exploration has now been entered on. The ingestion of inadequate amounts of the vitamins and calcium, phosphorus and copper, as well as iron, iodine and the like, may have more to do with mental disease than has heretofore been realized. The experiment—incomplete as yet—of the Otho Sprague Memorial Foundation in feeding 100 young schizophrenic patients at Elgin with a "vitamin B complex" over a long period of time is a stimulating approach to the treatment of psychotic patients. Previous experiments with animals and school children are interesting.

FUTURE TRENDS

The future of modern state hospital treatment is an interesting field for speculation, especially in view of the past, which presents so many by-paths leading into the swamps of disillusionment. One may question whether any consistent evidence of neuropathology in schizophrenia—against which the effects of therapy may be checked as in dementia paralytica—will issue from laboratories using present day methods of examination. This ground has been painstakingly worked over for years without yielding consistent and generally accepted results. We look more hopefully to the work with living tissues and to those who survey the advances of physiologic chemistry with inspired discernment. Especially does there seem to be some hope in the study of the colloids, the chemistry of films, surfaces and interfaces. Changes in the status of the protein micelles of the blood may reflect correlated changes in the fixed tissues, including those of the brain, possibly an evidence of chronic toxemia, dyscrinism, disturbance of the autonomic nervous system, and the like. We have done some work that contributes slightly to this idea and vaguely indicates tentative therapy along corresponding lines.

We look for the development of an abbreviated psychoanalytic technic applicable to psychotic patients in larger numbers, especially for use during their convalescence before they leave the hospital. And yet, as the tremendous rôle of the sympathetic and parasympathetic systems is increasingly revealed, we wonder whether, perhaps, we shall not come to know how to balance their activities by other means than psychoanalysis. If, as Hess [24] expresses it, "disturbed psychic function can be the expression of disturbed equilibrium between the influences of the parasympathetic and sympathetic principle," very possibly complexes at times become malignant and regressions of personality occur as the result of slowly developing or suddenly acquired autonomic-endocrine imbalance in those who otherwise might have carried on quite well despite certain constitutional inadequacies.

Hoskins' application of Cannon's concept of homeostasis to the research problems of schizophrenia expresses an increasing attention to the reaction patterns of the entire mind-body organism in the study of the psychotic, a direction of thought which should eventually result in a more resourceful, less empirical therapy. The intensive study of a large number of acute cases of schizophrenia in anticipation of their possible recovery, together with a painstaking, retrospective analysis of those who eventually recover, or greatly improve, might reveal important clues to the modus operandi of their social readjustment. More painstaking evaluation of such data than have been heretofore attempted would be well worth while, corresponding in psychiatry to antemortem and postmortem case studies of physical illness.

Increasingly better neuropsychiatric training for undergraduate medical students is to be expected, especially along the line of actual case contacts during clinical clerkships and special internships in psychiatric hospitals. This practice, together with residencies in

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neurology and psychiatry, plus some training in neuropathology, will furnish staff men prepared to do excellent work if they can be interested in state hospital practice by the allure of proper facilities, housing and recognition of services rendered. We look forward to greater efforts in the future on the part of hospital managements to relieve staff members of unessential work, so that they may devote themselves intensively to their medical task of evaluating the patient-treatment problem. There is a natural tendency to overdevelopment of routine in an effort to stop every possible loophole for public complaint and official criticism.

We deplore the statement that state hospitals deal only with "end products," especially in view of the fact that so much of medical and surgical practice also deals with end results. As psychiatric institutes associated with medical schools increase in number, we hope for programs of teaching, research and treatment that will envisage state hospitals as extensions of these institutes.

We look forward to a state of mind in welfare departments that will seek to encourage the outstanding worker with citations and awards of one kind or another. This idea may even develop so far as to involve the reward of an entire institution with added grants for the continuation of important work on a larger scale. In many commonwealths, partisan politics still impinge unduly on the hospital situation. The wise selection and retention of hospital heads and their assistants, a simple measure so obviously right as to require no argument, will doubtless affect the future treatment of institutionalized psychotic patients more favorably than any other one factor in the situation.

When one visualizes the treatment of dementia paralytica as it was prior to the advent of fever therapy and considers the situation today, contemplates the contribution of psychoanalysis to the understanding of the mental phenomena of psychotic states, and takes into consideration the tremendous improvement in the entire medical school-state hospital situation during the past twenty-five years, there is good reason to look on the future treatment of psychotic patients as one of the most exciting adventures, as well as one of the most hopeful therapeutic enterprises, in the field of medicine today.

SUMMARY

A modern state hospital is a treatment situation in which personnel is more important than structures.

Various factors, exogenous and endogenous, contribute to the discouragement of therapeutic effort.

The therapeutic drive derives primarily from the attitude of the medical school toward psychiatry.

The orientation of the medical staff toward causation is important. The patient is to be considered as a somatopsychic problem.

Adequate laboratories are as essential to proper treatment as they are in a general hospital.

In addition to classic procedures, more recent trends involve principally the endocrines, various modes of carrying out fever therapy, better nutrition, and various attempts to bring about readjustment of metabolism.

Future trends of therapy will be determined by better training of psychiatrists, together with increased recognition of their efforts, and by further developments of physiologic, especially colloidal, chemistry, combined with an increased knowledge of the activities of the autonomic nervous system.

750 South State Street.

ABSTRACT OF DISCUSSION

DR. C. O. CHENEY, New York: The authors mentioned one point to which I wish to confine my remarks, and that is the importance of the adequacy and training of the medical personnel. The removal of politics from the appointment of the medical personnel in state hospitals is a fundamental, primary requirement for stability and maintenance of adequate personnel. In New York all the medical positions, as well as others in the state department of mental hygiene, are on a civil service basis, and in twenty-three years' experience in the state hospital service I have never known any one to be appointed or removed from a position on account of a political situation. In the department, all medical appointments above the grade of medical intern appointments are made after civil service competitive examinations. Appointments are made after promotion examinations from assistant physician to senior assistant, first assistant and superintendent. A man does not come in as superintendent unless he has come through the various grades in the state department of mental hygiene. Most of the hospitals take on their staffs now only men who have had a general internship, because they are approved by the American Medical Association for residencies in psychiatry. The psychiatric institute has continued in its new location as part of the Columbia-Presbyterian Medical Center the practice originated by Adolf Meyer some thirty years ago of having special courses for state hospital physicians. At present it is a ten weeks course given under university auspices by the combined departments of neurology and psychiatry of the medical school at the institute. The head of the department of psychiatry in Columbia is also the director of the institute. The ten weeks course covers both neurology and psychiatry. The course is planned primarily as a source of stimulation for further investigation and study for the men who go back to the hospitals, and we find from experience that this aim is pretty well carried out. Men get points of view that they never have had before or never would be able to get in more or less isolated hospitals. In addition, we have yearly interhospital conferences. Each year we send out a list of topics to the hospitals for men to work on about a year ahead of the time of the conference. Men from practically all the hospitals worked on problems during the year, and those papers were presented by them at two conferences, one at the institute and one upstate at Utica, twenty-five papers in all being presented. The affiliation with the university is important. The more men who can be brought from surgery and other branches of medicine into state hospitals, the better it is for the hospitals.

DR. GEORGE B. HASSIN, Chicago: The title of the paper by Drs. Read and Nerancy should in my opinion be "Modern Care of the Insane," instead of treatment, for, with few exceptions the treatment of the insane is purely symptomatic, not amenable to medicinal, surgical, psychotherapeutic and even psychoanalytic procedures. This is especially true of the large class of patients classified as dementia praecox, manic depressive, paranoid and similar states. The reason for the poor progress made in the treatment of insanities is the lack of knowledge of pathophysiology. The types of abnormal mental conditions mentioned do not manifest morphologic changes in the nervous system but are most likely caused by some physicochemical and physiologic processes that result in severe toxemia. In some cases, pathologic studies revealed changes in the cerebral subarachnoid space that might be interpreted as a reaction against abnormal chemical substances discharged by a toxic brain into the subarachnoid space. It was considered worth trying to relieve the brain of such abnormal chemical substances by washing them out with diluted physiologic solution of sodium chloride. This has been tried in the Psychiatric Institute of the University of Illinois on four catatonic patients by Drs. Haines and Broder. Intravenous injections of from 1,500 to 2,640 cc. of a diluted (as much as three times) physiologic solution of sodium chloride were given combined with spinal drainage and immediately followed by injections of hypertonic solutions. Though at the beginning the results were somewhat encouraging, in the majority of the cases treated there was hardly any significant change for the better, though the patients stood the treatment well. The method somewhat modified will be tried in cases less advanced and will be described soon by Drs. Haines and Broder.

DR. H. J. GAHAGAN, Chicago: Forty-one years ago I entered the state service of Illinois as an assistant physician in the Elgin State Hospital. Dr. Kilbourne, the first superintendent, was granted full control in the construction of the building and the beautiful grounds of the hospital. The front wards were arranged with libraries, billiard rooms, music rooms, private dining rooms and other home comforts. The patients in the back wards were subjected to restraint measures so predominant in those early days. Dr. Arthur Loewy was the superintendent during my early service. His first work was to abolish restraint. We were not favored with the diagnostic knowledge, appliances and procedure so usual today. In 1914 I returned to the service as superintendent of the Elgin State Hospital. The complexion of things had changed because of overcrowding, and many of the home features and amusements were necessarily done away with in order to make more room for beds. The building of more units had not been commensurate with the population. Many features for the welfare of the patient during this period were introduced. All restraint measures were removed, and the paraphernalia was either used for better purposes or was destroyed. The removal of bars from the window was carried out and occupational therapy was instituted. There were also more modern methods of diagnosis and treatment, facilitated through the initiation of laboratory procedure.

DR. CHARLES F. READ, Elgin, Ill.: Dr. Cheney has spoken from the point of view of New York. There are other states not so enlightened as New York in respect to modern state hospital care. The *Psychiatric Quarterly* represents the work done and reported by the New York State Hospital Service. In many states the hospitals are still quite isolated. They are rather jealous of one another and resent "interference" from outside, a vestigial remnant of the old days when they were considered more or less as mental barracks. I couldn't quite understand what Dr. Hassin said concerning treatment. I thought I mentioned treatment. Care is not all that can be accomplished in a state hospital. The main purpose of this paper was to present to the section the possibility of a state hospital doing much more for those committed to its custody.

RECOGNITION OF TYPES OF ARTERIOSCLEROSIS BY OSCILLOMETRY

ALFRED FRIEDLANDER, M.D.
CINCINNATI

The importance of the concept of cardiovascular disease as a clinical entity is fully understood today. Emphasis has been placed, and properly so, on the recognition of cardiac abnormalities of various types. Recently the necessity of obtaining information as to the condition of the vascular tree has begun to be stressed. It is not believed today that arteriosclerosis is merely an expression of aging of the arteries. As Aschoff[1] has said, "Arteriosclerosis is not merely a change or transformation attending the process of aging; it is not a mere infirmity of old age, but rather a disease of the vessels manifesting itself mainly during senescence." The clinical recognition of arteriosclerosis thus becomes a matter of import, because the type and the degree of arteriosclerosis present in a given individual have distinct prognostic significance. Any method of clinical examination that gives reliable information as to the condition of the vascular tree thus becomes worthy of attention.

The studies here reported were undertaken as part of the work of the Vascular Disease Clinic of the Cincinnati General Hospital. By means of a new technic, eight oscillometric curves are taken in each instance, and it has been shown that it is the form of the oscillogram, rather than the mere height of the oscillometric index, which is of greatest importance.

METHOD[2]

The Boulitte modification of the Pachon oscillometer has been used for all determinations. This apparatus has two overlapping, distensible pouches having a combined width of 15 cm. These pouches are enclosed in a rigid web cover fitted with web straps. The apparatus is strapped to the extremity to be studied. By a simple valve arrangement the pouches can be inflated together or singly. A manometric dial permits the recording of oscillometric variations at different pressures.

In each case studied, eight oscillograms are made; i. e., of the forearms, upper arms, legs and thighs on both sides. With the band snugly fitted to the extremity, air is pumped in until the pressure is great enough (in ordinary cases) to prevent any movement of the oscillatory needle. In certain cases even at the pressure of 300 mm. of mercury (the limit of the instrument) oscillations still occur. By means of a needle valve, the pressure is dropped 10 mm. at a time and the height of the oscillation recorded at the various pressures.

Since the time element is a factor, the observer announces the oscillations at the various pressure levels, which are then immediately charted by an assistant. By the use of various chart symbols for the different extremities, the four oscillograms for the upper and again for the lower extremities can be charted on one graph and the two graphs combined on one sheet.

Blood pressure readings are taken by the auscultatory method on the right and left arms as soon as the arm oscillograms are charted. The patient lies recumbent during the test so that the extremities are approximately at the heart level.

With this technic, several hundred charts were made of patients suffering from diverse conditions, material from the medical service of the Cincinnati General Hospital being used. In all cases studied, records were made of the results of physical and laboratory examinations, electrocardiograms and roentgen studies.

As one surveys the rather extensive literature on oscillometry that has appeared recently, one is struck by the fact that in nearly all studies the main emphasis has been placed on the maximal oscillometric phase (MOP), a single arm tracing having been taken.

It is evident now that the form of the oscillogram, taken with the eight tracing technic, is of paramount importance. From the form of the oscillogram certain definite deductions may be drawn as to the condition of the vascular tree. In the consideration of cardiovascular disease, attention ought certainly to be directed to the vascular tree. It would appear that oscillometry affords valuable evidence not only as regards the presence of arteriosclerosis but also as to its type.

The normal oscillogram of the upper arm begins to show an oscillometric rise at about 120 mm. of mercury and drops to zero between 40 and 30 mm. of mercury. Oscillations do occur at higher pressures than 120 mm., but they are not marked. The maximal oscillometric phase occurs between 100 and 80 mm. of mercury. The

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From the Department of Internal Medicine, University of Cincinnati College of Medicine, and the Vascular Disease Clinic, Cincinnati General Hospital.

1. Aschoff, Ludwig, in Cowdry, E. V.: Arteriosclerosis, New York, Macmillan Company, 1933, p. 5.

2. Friedlander, Alfred: Am. Heart J. 9:212 (Dec.) 1933.

thigh shows oscillations at higher pressures (around 160 mm. of mercury) and the drop occurs around 40 mm. The maximal oscillometric phase occurs somewhat above 100 mm.

In obliterative vascular sclerosis the oscillations occur over a much narrower range of pressure, the maximal oscillometric phase, especially in the lower extremity, is apt to occur at higher pressures—from 140 to 120 mm. of mercury—and the height of oscillation is low—from 2 to 3 units.

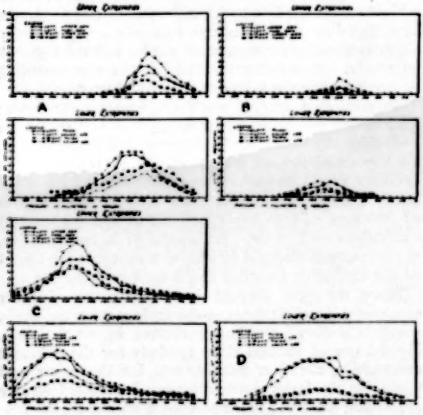

Fig. 1.—Four typical oscillograms: *A*, normal oscillogram: white man, aged 65; blood pressure 120 systolic, 60 diastolic; clinical diagnosis, pernicious anemia. *B*, generalized vascular sclerosis: white man, aged 49; blood pressure 120 systolic, 100 diastolic; clinical diagnosis, arteriosclerotic heart disease and vascular sclerosis. *C*, essential hypertension: white woman, aged 50; blood pressure 250 systolic, 160 diastolic; clinical diagnosis, essential hypertension and nephrosclerosis. *D*, medial arteriosclerosis: white woman, aged 68; blood pressure 190 systolic, 120 diastolic; clinical diagnosis, arteriosclerosis, marked in arteries in lower part of legs.

In hypertensive heart disease with arteriosclerosis, the spread of oscillations is very much greater. The height of the oscillometric index varies very greatly, but the maximal oscillometric phase in both upper and lower extremities always occurs at levels well above 100 mm. of mercury.

In malignant hypertension with nephrosclerosis the oscillometric curve is quite characteristic. There is what might be called a definite shift to the left. In both upper and lower extremities the maximal oscillometric phase occurs at levels much above the normal (from 220 to 200 mg. of mercury). Oscillations begin at such high pressures as 300 mm. of mercury. Furthermore, the oscillations approach zero at much higher levels (around 100 mm. of mercury). The unit height of oscillations is high, from 8 to 9 at the maximal oscillometric phase.

In medial arteriosclerosis of the Mönckeberg type, there is marked difference in the curves in legs and thighs, or forearms and arms, or both.

There is a wide spread of oscillations, which begin around 240 mm. of mercury, extending to 40 mm. of mercury. The maximal oscillometric phase occurs at various pressures and the curve is sometimes of the plateau type.

It must be added that mixed forms of sclerosis are of course common. In such cases, definite diagnosis cannot be made from the oscillogram alone. The diagnosis of vasospasm of the peripheral arteries can also be made by means of the oscillogram. Where, from the tracing, one suspects that vasospasm exists, vasodilatation is induced by the application of external heat or by the use of other methods of vasodilation, and the tracing is repeated. The difference in curves thus obtained is striking and, many times, definitive.

With this method, groups of cases of various types have been studied during the past eighteen months to determine the types of arteriosclerosis encountered. A discussion of certain of these groups of cases follows. Figure 1 shows some actual tracings taken.

Bell [3] says that medial calcification is one of the most important changes occurring in the muscular arteries. It begins early in life and increases progressively with age but varies greatly in degree in individuals of the same age group. The high relative frequency of medial calcification in the arteries of the lower extremities suggests that functional strain is an important factor in its genesis.

The oscillometric curve of medial sclerosis is so distinctive that the clinical recognition of the existence of the condition is much facilitated. Accordingly, in the analyses of the oscillograms in specific diseases, attention has been given, in each series, to the incidence of medial sclerosis.

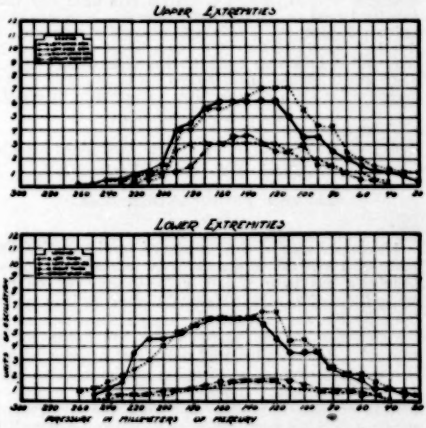

Fig. 2.—Oscillogram in hypertensive heart disease: white woman, aged 68; blood pressure: left, 190/110; right, 190/120.

HYPERTENSIVE AND ARTERIOSCLEROTIC HEART DISEASE WITH VASCULAR SCLEROSIS

Thirty-six cases of hypertensive heart disease were studied. Ten, or 27.7 per cent, showed medial arteriosclerosis. Four patients were under 40 years of age.

The divergent forms of tracings obtained is well illustrated in figure 2, but it will be noted that the oscillographic criteria for diagnosis are constantly present. The tracing in malignant hypertension with nephrosclerosis (fig. 1 *C*) shows its own definite form well illustrated in the photograph of the tracings made.

3. Bell, E. T., in Cowdry: Arteriosclerosis, p. 494.

CORONARY DISEASE

Sixteen patients with coronary disease were studied. Of these sixteen patients, eleven showed definite clinical and electrocardiographic evidence of coronary thrombosis; the other five showed the general picture of coronary sclerosis.

Five of the sixteen cases in the group showed the oscillometric tracing of medial arteriosclerosis. Two of these were cases of thrombosis, the other three of coronary sclerosis.

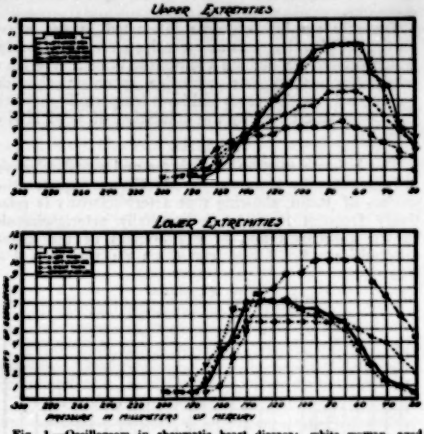

Fig. 3.—Oscillogram in rheumatic heart disease: white woman, aged 22; blood pressure: left, 145/0; right, 145/0.

Of the eleven cases in the series in which medial arteriosclerosis was not present, seven showed the picture of general vascular sclerosis in the tracings; four gave normal charts.

The patients with medial arteriosclerosis were all men, ranging in age from 51 to 78.

Of the two patients in the series under 40 years, one was a Negro man with a positive Wassermann reaction and the other a white woman with a negative Wassermann reaction.

At this time in the study it is not possible to draw any definite conclusions from the standpoint of diagnosis or prognosis from the oscillometric curve in cases of disease of the coronary arteries.

RHEUMATIC HEART DISEASE

The relation of rheumatism and various forms of arthritis to arteriosclerosis is still under discussion. MacCallum is not sure that there is a distinct relation. On the other hand, Zeek [4] analyzed the records of 1,070 autopsies in persons under 30 years of age. Twenty-three cases of rheumatic heart disease came to autopsy. She found that rheumatic heart disease was almost invariably accompanied by atheromatous changes in the aorta, or pulmonary or coronary arteries.

In a second paper she [5] studied the changes in sixty-two cases of rheumatic heart disease, in persons dying at ages of from 10 to 70. The observations were in accord with those reported in the previous study. In addition, she notes that lipoid deposition has seemed to begin soon after the onset of cardiac disease and that, in a very general way, it has paralleled in degree the cardiac lesion.

We have studied thirty-six cases of rheumatic heart disease. Nine of these (25 per cent) showed the tracings of medial arteriosclerosis, while six of the remaining cases showed vascular sclerosis. Thus of thirty-six cases, fifteen (41.6 per cent) showed the oscillometric curves of arteriosclerosis.

Of the thirty-six patients studied, twenty-three (63.8 per cent) were under 40 years of age. Five (55 per cent) of the nine patients with medial sclerosis were under 40. One of the six patients who had vascular sclerosis was under 40.

The oscillometric curves in rheumatic heart disease present certain well defined characteristics when they show a deviation from the normal.

There is a definite shift to the right. The maximal oscillometric phase occurs at levels usually below 100 mm. of pressure in both upper and lower extremities, and there is a high oscillometric index. These observations are not dependent on blood pressure, as will be noted in the tracings shown.

SYPHILITIC HEART DISEASE

In syphilitic heart disease the picture is different. Of fifteen cases studied, fourteen, or 93.3 per cent, showed

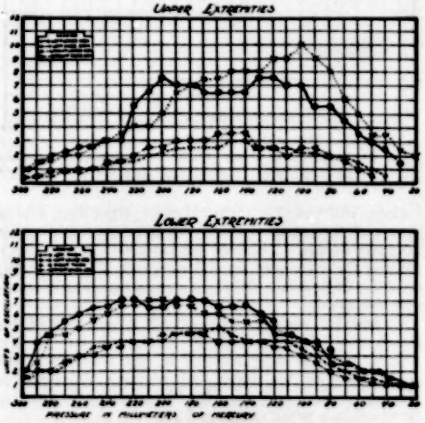

Fig. 4.—Oscillogram in syphilitic heart disease: Negro, aged 35; blood pressure: left, 220/70; right, 220/70.

the tracing of medial sclerosis. All fourteen patients were males, nine white and five Negroes. The high incidence of medial sclerosis in syphilitic heart disease is, of course, well known. By means of the oscillometric curves the clinical diagnosis is much facilitated. As will be seen in the charts, the shift to the right, as found in rheumatic heart disease, does not occur, and the characteristics of the curve of medial sclerosis as previously noted are well shown.

THYROID ADENOMA

Nineteen cases of thyroid adenoma were studied. Two of these (10.5 per cent) showed medial sclerosis, and six of the remainder showed vascular sclerosis.

4. Zeek, Pearl: Am. J. M. Sc. **184**: 350 (Sept.) 1932.
5. Zeek, Pearl: Am. J. M. Sc. **184**: 356 (Sept.) 1932.

These were all women, aged respectively 29, 37, 40, 41, 46 and 56.

Eight of the nineteen cases (42.1 per cent) showed arteriosclerotic curves.

At present all cases in which total thyroid ablation is to be done for the relief of myocardial insufficiency are being studied. These studies have not progressed far enough to warrant a report.

PULMONARY TUBERCULOSIS

Thirty-two cases of pulmonary tuberculosis were studied at the Hamilton County Tuberculosis Sanatorium. All were far advanced cases; there were fifteen men and seventeen women. All but four were under 50 years of age. Three of the patients (9.6 per cent) showed the curves of medial sclerosis, all white men, aged 40, 44 and 53. All three gave a negative Wassermann reaction.

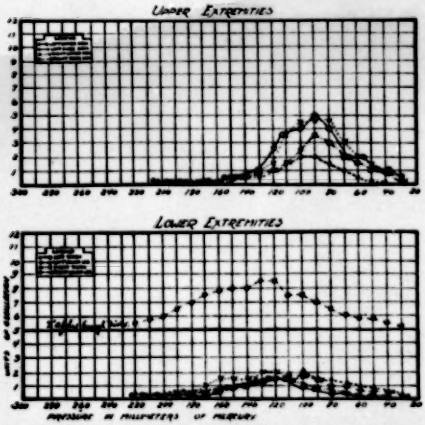

Fig. 5.—Oscillogram in a case of poisoning with corrosive mercuric chloride; marked vasospasm and effect of amyl nitrite: white woman, aged 27; blood pressure: left, 120/80; right, 120/80.

In addition, seven other cases (21.8 per cent) of the group showed the curves of vascular sclerosis, six women and one man, ranging in age from 24 to 35 years. Six of the seven had negative Wassermann reactions; the one positive Wassermann reaction occurred in a white man, aged 28.

The three cases of medial sclerosis showed the characteristic curve in the upper extremity only. This may or may not be coincidence; at any rate, no definite explanation of the finding may be advanced.

The relation of pulmonary tuberculosis to the pathogenesis of arteriosclerosis is still under discussion. MacCallum [6] is of the opinion, concurred in by Ophüls, that tuberculosis has no effect on the arteries, at least so far as arteriosclerosis is concerned.

It is admitted that the series studied is much too small to warrant the making of any very definite statement as to the relation of pulmonary tuberculosis and arteriosclerosis. None the less, the observations are sufficiently striking to make further studies advisable.

6. MacCallum, W. G., in Cowdry: Arteriosclerosis, p. 357.

VASOSPASM

In the routine work of the Vascular Disease Clinic of the Cincinnati General Hospital, the differentiation of vasospasm from obliterative arterial disease of the extremities is an important diagnostic procedure. One method in use is to take tracings of the extremities, blanket the entire body and lay on hot water bottles to relax any existing vasospasm by increasing the environmental temperature; after forty-five minutes of such heating, tracings of the same extremities are taken again. This procedure has been used by us on several occasions.

Recently we have become interested in the effect on the peripheral vessels of corrosive mercuric chloride, which produces a definite vasospastic effect. We have taken tracings in our corrosive mercuric chloride (attempted suicide) cases and have temporarily nullified the vasospastic effect by the exhibition of amyl nitrite (fig. 5).

DIABETES

The intimate relation of diabetes and arteriosclerosis is now generally recognized. MacCallum [7] quotes the studies of Joslin, showing that arteriosclerosis is relatively frequent in diabetes, especially arteriosclerosis of the coronaries and of the arteries of the lower extremities. Bell [8] also comments on the fact that

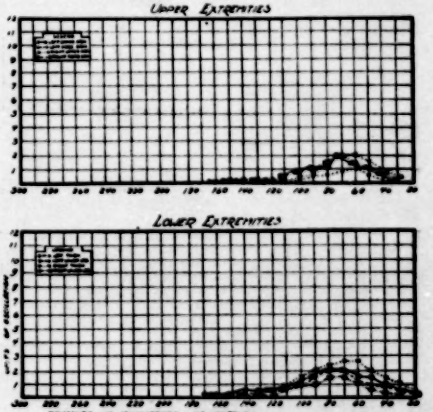

Fig. 6.—Oscillogram in diabetes in a Negro girl, aged 13 years; blood pressure: left, 95/60; right, 95/60.

diabetes causes a definite increase in the intensity of intimal atherosclerosis. He says that "it is not known whether diabetes has any relation to medial calcification or fibrosis."

We have made tracings in thirty-three cases of diabetes. No attempt has been made to select severe cases. We have taken patients from the outpatient and the inpatient service of the Cincinnati General Hospital. There were fourteen males and nineteen females. The ages ranged from 10 to 79 years, twenty-eight of the patients being under 60 years of age.

Four of the patients, two men, aged 54 and 55, and two women, aged 70 and 71, showed the curve of medial

7. MacCallum, W. G., in Cowdry: Arteriosclerosis, p. 361.
8. Bell, E. T., in Cowdry: Arteriosclerosis, p. 487.

sclerosis (12.1 per cent). They were all known to have had diabetes of long standing. The Wassermann reaction was negative in all four.

In addition to these cases, seventeen other patients in the diabetic group showed the oscillometric chart of vascular sclerosis, so that, of the thirty-three cases studied, twenty-one (63.6 per cent) showed evidence of some form of arteriosclerosis.

Of the seventeen patients with vascular sclerosis, eleven were under 50 years of age. The figures as given are not excessively high in comparison with other studies. Thus, Joslin showed that in autopsies of 112 persons dying of diabetes the arteries showed advanced arteriosclerotic changes in ninety-four.

What is particularly significant in this small series is that four of the thirty-three cases showed evidence of medial sclerosis. If such a ratio continues to obtain as a greater number of diabetic patients is studied, it would seem that one might have to say definitely that medial sclerosis does occur in diabetes.

COMMENT AND CONCLUSIONS

By means of a new technic involving the taking of eight tracings on each patient, oscillograms have been made in a large series of cases. It has become apparent that the form of the oscillographic curve is of importance (*a*) in determining variations from the normal in the vascular tree, (*b*) in determining the type of arteriosclerosis existing.

It is possible by this means to make the differentiation between vasospasm and organic arterial disease in peripheral arteries.

One object of these studies was to determine whether the oscillographic records of various types of arteriosclerosis would run true to form. This is apparently true. It is quite possible to make a diagnosis of medial (Mönckeberg) sclerosis by means of this type of oscillogram.

The curve in malignant hypertension with nephrosclerosis is perfectly definite.

The oscillogram in rheumatic heart disease is quite different from that in syphilitic heart disease. In syphilitic heart disease the curve of medial sclerosis predominates.

Even in rheumatic heart disease in young persons a considerable proportion show oscillometric evidence of vascular sclerosis.

The high incidence of arteriosclerosis in diabetes is again demonstrated in these studies. If the present figure of 12 per cent of incidence of medial sclerosis is maintained as the studies progress, an answer will be afforded the question, still moot, as to whether medial sclerosis occurs in diabetes.

No definite conclusions as to the existence of coronary thrombosis in suspected cases can be drawn from the oscillogram. Neither can sweeping deductions be made in cases of pulmonary tuberculosis.

But it does seem reasonable in the light of these studies to suggest that, by means of oscillometric studies of the sort here described, definite information may be had as to the condition of the vascular tree.

By means of oscillometric tracings made by this technic, definite information may be had not only as to the existence of vascular sclerosis in a given case but also as to its type.

ABSTRACT OF DISCUSSION

DR. CARL J. WIGGERS, Cleveland: Oscillometric methods are based on fundamental physical propositions of dubious validity and are not destined to play any considerable rôle either in the diagnosis or in the understanding of generalized cardiovascular disease. They have a limited value but are not indispensable in the diagnosis of localized vascular diseases. The amplitude of any individual oscillation is determined by (1) the extra-arterial pressure, (2) the elasticity of the vessel compressed, (3) the height of diastolic blood pressure, (4) the amplitude of the pressure pulse and (5) the speed of the upstroke of the pulse wave, all integrated with the natural frequency of the ponderable swinging lever, which is not sufficiently great to follow pressure changes accurately. To untangle the effects of these numerous factors has proved beyond the capacity of physiologists and physicists up to the present time. I have perused carefully a large volume of French literature, but this has not clarified the situation for me. It tended rather to produce a state of complete mental fibrillation. Dr. Friedlander's graphic studies presented here and those which I viewed in his clinic in Cincinnati seem to leave no doubt that if the changes in amplitude of oscillations are plotted in relation to decreasing arterial pressures, the plots show striking differences in (*a*) normal subjects, (*b*) generalized cardiovascular disease, (*c*) essential hypertension, and (*d*) medial arteriosclerosis. As the diagnoses were apparently made preliminary to determining the character of the graphs, it would seem that the method merely supplements the facts on which these diagnoses were based. It would be dangerous to leave the thought that the oscillometer supplies a diagnostic adjunct that in any measure compares with basal metabolism apparatus or the electrocardiograph. Dr. Friedlander should be commended for presenting his facts and for modestly suggesting that they may serve as an adjunct in diagnosis. He deserves special commendation for his wisdom in refraining from explicit interpretations.

DR. ALFRED FRIEDLANDER, Cincinnati: Dr. Wiggers is quite right when he says that there are many factors which enter into the interpretation of oscillograms. I agree when he says that he cannot follow the French cardiologists in their conclusions. None the less, admitting that oscillograms must be interpreted in terms of those factors which maintain blood pressure, and likewise admitting the fact that the diagnoses have been made in advance, I still submit that here is a method which, if used judiciously, will give definite information as to the condition of the vascular tree. Thus, in the study of diabetes, the relation of arteriosclerosis is becoming more and more important. The relation of coronary disease to diabetes is well known. The management of diabetes per se is often complicated by the presence of cardiovascular lesions. Under such circumstances it becomes a matter of importance to know as much as possible concerning the state of the vascular tree. Continuous studies should add to the sum of our knowledge. Dr. Wiggers came to Cincinnati to address the Heart Institute and saw some of this work. He asked several questions to which I answered "I don't know." He asked "How many cases have you studied?" I said "About 500." Then he replied: "Well, you have a chance to get somewhere, as any man who has studied 500 cases and doesn't know stands a chance to learn." I propose to keep on trying to learn.

The Sole Function of Milk.—As a matter of fact, milk is the only article of diet whose sole function in nature is to serve as food. Anything else which we eat was "intended" (evolved) by nature for some other purpose and so must not be blamed too severely if it contains something which in too large quantity might not be best for us, or if it falls short of supplying adequately all the things which are essential to our nutrition. We do not seek to avoid every food of which this may be true, but rather to give it its proper place in our dietary or food supply, adequately balanced by other foods. What might be treated as problems of slight food injury are thus often more practically treated as problems of nutritional balance.—Sherman, H. C.: Food and Health, New York, Macmillan Company, 1934.

CONGENITAL DISLOCATION OF THE HIP

STATISTICAL ANALYSIS

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In the period from 1915 to 1933, 387 cases of congenital dislocation of the hip, representing 501 dislocated hips, have come under our observation. Of this total number, however, only 75 per cent, or 378 hips, were treated.

The policy of the clinic in respect to treatment can be shortly stated as follows: The bloodless reduction was accepted as the method of choice within the upper age limits of 5 for bilateral and 6 for unilateral cases, although there were many exceptions which either added to or detracted from the field of indication. External reasons prevented the observance of a lower age limit in the sense that only a few cases were treated in the first and second years of life.

The open operations were adopted not as a competition but as a supplementary method to the closed reduction. It was made contingent universally on failure of the closed method to accomplish reduction or retention of the hip or both. Failure of reduction within the age limit (up to 5 years) was, in our series, not as rare as in other reports (Annovazzi, 6,935 cases, 9,660 hips, 4.2 %; in our series, 7.5 per cent).

The incidence of the primarily irretainable hips, that is, early redislocation, is not as high in our series as is that given by others (Froelich, 20 per cent; in our series, 13.65 per cent).

Both the primarily irreducible and primarily irretainable hip constitute the principal indication for the open method.

The contingent of primarily irreducible hips was increased by our policy of refraining from strenuous and overforceful reduction. The reason for this was not only the immediate danger of applying excessive force but more so the postreduction degenerative changes, such as osteochondritis deformans, coxa plana, osteo-arthritis and other deformities, which are generally considered as results of the reduction trauma. Annovazzi, in 1932, reports definite changes of this type in 32 per cent of the cases. A second point of interest is whether the indication field for open operation can be enlarged by raising the age limit applying to closed reduction.

The palliative operative methods, again, depend for their indications on failure of both closed and open reduction and, principally, on the much wider age limits (to middle age). The average age in the group of palliative methods amounts to 14.2 years. On the other hand, the operative results are naturally so much inferior to those of the age limit methods that there is in this group a high percentage of not treated or conservatively treated cases. Only cases in which there were marked objective and subjective complaints were, as a rule, treated by means of palliative operations.

Read before the Section on Orthopedic Surgery at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 14, 1934.

STANDARDIZATION OF RESULTS

It is difficult to choose from the many suggestions in the literature a proper type of standard both suitable and fair. We have approached our standard as much as possible to that of Galeazzi's clinic (Annovazzi): Clinically good: a stable and painless hip, no easy fatigue, no marked oscillation, good mobility, no limp, no or slight Trendelenburg symptom. X-ray: concentric reduction; fair: cases with concentric or moderately eccentric placement of the head, but still in the socket, hip stable, only slight limp, no pain or easy fatigue, slight or no shortening, Trendelenburg symptom moderate; poor: all cases showing pain, bad limp, marked shortening of over 1 inch, and a subluxated or redislocated hip.

THE CLOSED METHODS

Of the cases of bloodless reduction, 85 per cent of the patients were females and 15 per cent males. Seventy-one per cent were unilateral and 29 per cent bilateral cases. Associated deformities were found in only 4.64 per cent, such as spina bifida, dislocation of the knee, torticollis, clubfoot and coxa vara. A point of interest is the age of the patient at admission: while 5 years was considered the upper limit for the closed reduction, 138 children, or 36 per cent, came under observation after 5; only five, or 1.4 per cent, were under 1 year of age.

In the light of experiences on early reduction it would seem that more attention should be paid to public education, which will facilitate admission at an early age.

The great number of patients over 5 are the main reason why in only 249 cases, or 319 hips (64 per cent) bloodless reduction was attempted.

In most of the cases the Paci-Lorenz method was followed and, as a rule, the hip was immobilized in the primary Lorenz position for about three months; then the leg was brought down to Lange's position and immobilized for another three months. Walking exercises were initiated at an average from six to eight months after immobilization. It is the policy of this clinic not to be too orthodox but to fit the maneuver of reduction and the position of immobilization as much as possible to the individual case. If Lange's position seems to be the position of best primary stability, we do not hesitate to put the leg in this position. The casts, as a rule, are changed after from six to eight weeks and the position is frequently controlled by roentgenograms. The attempts at reduction varied from one to five, reduction naturally being obtained in most of the cases at the first attempt; more than two attempts were made in only fifteen; more than one attempt was made in fifty-six hips, or 17.5 per cent. After the first attempt, 90 per cent were successful; after more than one attempt, 55 per cent were successful.

Mortality and Morbidity.—Immediate mortality was zero; two patients died incidentally shortly after operation. There were eleven postoperative complications: six fractures of the femur, four palsies, of which one was permanent, and one metastatic pyemic joint suppuration in a bilateral case.

Table 1 illustrates the postoperative results according to the time of observation.

From one to five attempts were made to secure bloodless reduction. Primary failures of reduction or primary failures of retention (redislocation in the cast) were encountered in forty-three cases, or 13.5 per cent; these

cases were largely reallotted to the group of open operations. The main reason for this group is the relatively high age, twenty-three of these patients, or 53 per cent, being older than 5 years of age.

The frequency of the reduction maneuver necessarily increases the trauma to the hip joint and severe arthritic or degenerative changes may develop. This was seen

TABLE 1.—*Closed Reduction Operative Results in Congenital Dislocation of the Hip According to Time of Observation*

1. Primary failures, hips	72 = 16.00%	(total) unilateral 28 bilateral 15 (24 hips)
2. Observation time less than 1 yr., hips	36 = 11.70%	(discarded)
3. Observation time 1-5 yrs. (av. 2.3 yrs.)	114 = 26.00%	(total) unilateral 64 bilateral 25
Results: good, hips	81 = 70.67%	satisfactory 85%
fair, hips	16 = 14.03%	not satisfactory 15%
poor, hips	17 = 14.91%	
4. Observation time 5-10 yrs. (av. 6.9 yrs.)	71 = 22.09%	(total) unilateral 37 bilateral 17
Results: good, hips	32 = 45.09%	satisfactory 73%
fair, hips	20 = 27.57%	not satisfactory 27%
poor, hips	19 = 26.76%	
5. Observation time 10-20 yrs. (av. 14 yrs.)	46 = 14.69%	(total) unilateral 26 bilateral 10 (20 hips)
Results: good, hips	24 = 52.17%	satisfactory 70%
fair, hips	8 = 17.39%	not satisfactory 30%
poor, hips	14 = 30.43%	

especially if the closed reduction method was tried more than once in children over 4. In these, one attempt should be sufficient.

In thirty-six the postoperative observation period was either less than one year or they were still in the cast, so that the result could not be judged, or they could not be followed up at the end of the immobilization period; these cases were eliminated from the group. The remaining 231 hips are divided into three groups, with observation from one to five, from five to ten, and from ten to twenty. The classification of these results was on the clinical evidence rather than on the roentgenograms, the latter often showing considerable changes of the femoral head and acetabulum in cases with good or very good results.

It will be seen that the incidence of satisfactory results (good and fair), at one to five years observation, is 85 per cent against 15 per cent unsatisfactory.

In the second group, with the observation time from five to ten years, satisfactory results are noted in 73 per cent and unsatisfactory results in 27 per cent.

In the third, with the observation period from ten to twenty years, satisfactory results were obtained in 70 per cent and unsatisfactory results in 30 per cent.

One notices the rapid decrease of the good results as the period of observation extends, and about 25 per cent of the good results become fair or poor beyond five years of observation. If it is considered that the average observation time for the last group (from ten to twenty years) is fourteen years, and the average age at reduction about 3, the patient at the end of observation is still in the growing age, and the definite outlook of the bloodless reduction is not as good as some clinical statistics might imply. For this reason it may be safe to say that statistics of closed reduction of the hip are of only relative value as long as they do not report on a good number of cases observed for a certain period after bone growth has stopped. A painless and stable hip ten years after reduction is not an absolutely definite criterion, and some of the older cases (fifteen years) of congenital dislocation of one or both hips, which have never been treated, may show a painless and stable hip.

Table 2 shows the operative end results arranged according to age groups:

Group A, patients from 1 to 2 years old at the time of reduction, twenty-six hips, or 8.2 per cent. Satisfactory results (good plus fair) were obtained in 54 per cent, unsatisfactory in 38 per cent, and undetermined 8 per cent.

One notices the low percentage (8.2) of closed reductions attempted before the second year of life, and in the small number of cases in which closed reduction was done at this age the results were not as good as expected, being only somewhat over 50 per cent. This seems to be in contradiction to the more recent reports on the exceptionally good results of early treatment of congenital dislocation of the hip. However, it is probably due to the fact that the cast treatment which was applied was not the best treatment for early childhood, as it is difficult to maintain the position in a well fitting cast in a very young child.

Group B, patients from 2 to 3 years of age at the time of reduction, 103 hips, or 30.28 per cent, sixty-nine unilateral and thirty-four bilateral. Satisfactory results were obtained in 68 per cent, unsatisfactory in 20 per cent, and undetermined in 12 per cent of the cases.

Group C, patients from 3 to 4 years old at the time of reduction, eighty-six hips, or 27 per cent, forty-two

TABLE 2.—*Closed Reduction Operative Results in Congenital Dislocation of the Hip According to Age Group*

A. Age at time of reduction: 1-2 yrs.; hips	26 = 8.2%	unilateral 18 bilateral 4
Results: good, hips	12 = 46.14%	satisfactory 54%
fair, hips	2 = 7.69%	
poor, hips	10 = 38.45%	not satisfactory 38%
undetermined	2 = 7.69%	undetermined 8%
B. Age at time of reduction: 2-3 yrs.; hips	103 = 32.38%	unilateral 69 bilateral 34
Results: good, hips	57 = 55.33%	satisfactory 68%
fair, hips	13 = 12.62%	
poor, hips	21 = 20.38%	not satisfactory 20%
undetermined	12 = 11.65%	undetermined 12%
C. Age at time of reduction: 3-4 yrs.; hips	86 = 27%:	unilateral 42 bilateral 22
Results: good, hips	38 = 44.17%	satisfactory 57%
fair, hips	11 = 12.80%	
poor, hips	26 = 30.23%	not satisfactory 30%
undetermined	11 = 12.80%	undetermined 13%
D. Age at time of reduction: 4-5 yrs.; hips	32 = 10%:	unilateral 16 bilateral 8
Results: good, hips	11 = 34.37%	satisfactory 53%
fair, hips	6 = 18.75%	
poor, hips	12 = 37.50%	not satisfactory 38%
undetermined	3 = 9.37%	undetermined 9%
E. Age: 5 and over (average 6.3 yrs.), hips	70 = 22%:	unilateral 38 bilateral 16
Results: good, hips	18 = 25.71%	satisfactory 43%
fair, hips	12 = 17.14%	
poor, hips	36 = 51.42%	not satisfactory 51%
undetermined	4 = 5.71%	undetermined 6%

unilateral and twenty-two bilateral. Satisfactory results were obtained in 57 per cent, unsatisfactory in 30 per cent, and undetermined in 13 per cent.

Group D, patients from 4 to 5 years of age at the time of reduction, thirty-two hips, or 10 per cent, sixteen unilateral and eight bilateral. Satisfactory results were obtained in 53 per cent, unsatisfactory in 38 per cent, and undetermined in 9 per cent.

Finally, group E, patients over 5 years of age at the time of reduction, seventy hips, or 22 per cent, thirty-

eight unilateral and sixteen bilateral. Satisfactory results were obtained in 43 per cent, unsatisfactory in 52 per cent, and doubtful in 5 per cent.

Comparing the results in the unilateral and bilateral cases in all age groups, arranged according to periods of postoperative observation, one finds a considerably higher percentage of satisfactory results in the unilateral cases, giving the prognosis in bilateral cases in our series throughout at about 10 to 20 per cent worse than in the unilateral cases. As there is no essential difference between the unilaterally and bilaterally dislocated hip so far as the reduction maneuver is concerned, the difference can only lie in the greater difficulty in retaining the two reduced hips by a plaster cast. We would consider the numerical difference between the satisfactory results seen in bilateral cases as purely and primarily due to technical insufficiency.

TABLE 3.—*Obstacles to Open Reduction*

1. Capsular:	
Iliac adhesions	21
Hour-glass constriction	22
Pathologic changes	9
2. Pelvifemoral structures:	
Adductor contracture	14
Iliopsoas contracture	4
Rectus contracture	3
Abductor contracture	5
3. Acetabular:	
Soft tissue plug	22
Ligamentum teres	18
Disproportion and deformity	14
4. Femoral head and neck:	
Cartilage changes	10
Deformity of head	17
Deformity of neck	3
Anterior dislocation	4

Note: Anteversion was common but cannot be numerically recorded, owing to inaccuracy of the observations.

Redislocation of the hip occurred in sixty-six cases altogether, or 26.5 per cent, but in thirty-four of these (13.64 per cent) the redislocation was noticed within the immobilization period.

In thirty-two cases the redislocation occurred more or less after the end of the immobilization period, in one case fifteen years afterward, following a direct trauma to the hip joint. Besides the interposition of the soft tissues, the main reasons for the late redislocations are the shallow acetabulum and the development of deformities of the upper end of the femur, leading sometimes to complete absorption of the epiphysis, to subluxation and finally to complete dislocation of the upper end of the femur.

THE OPEN REDUCTION

The open reduction was done in thirty-eight cases with forty-four hips, 7.89 per cent males and 92.11 per cent females. Twenty-four, or 63.18 per cent, were unilateral, and fourteen, or 36.82 per cent, bilateral. The age limits varied from 21 months to 11 years, the average age being 4.84 years.

The indications for open reduction were failure of reduction in twenty-two and failure of retention in fifteen cases; primary open reduction was undertaken in only seven cases.

Preoperative treatment consisted in preliminary skeletal traction, which, however, was effective in only fourteen out of twenty-two cases. The interval between the attempted closed reduction and the open operation was, on the average, forty-nine weeks.

Table 3 analyzes the anatomic difficulties in open reduction. Capsular obstacles are in the foreground, particularly the iliac adhesions (twenty-one hips) and the hour-glass constriction (twenty-two hips). Of the muscular obstacles the adductor contraction is the most important; of the skeletal, the plugging of the acetabulum by soft tissue and the ligamentum teres (twenty-two and eighteen hips, respectively). Cartilage changes were noticed in ten; deformities of the head in seventeen cases.

In the technic of the operative reduction, Smith-Petersen's approach was used in forty out of forty-four cases, and Whitman's approach four times. In addition to the open reduction, shelving was carried out in ten cases.

Postoperative treatment consisted in the plaster immobilization for a duration of from seven weeks to five and one-half months, on an average of 10.33 weeks, either in Lange's position (65.78 per cent) or in the primary Lorenz position (34.22 per cent).

Physical therapy followed the cast treatment in twenty-six cases, or 68.68 per cent, for an average of 4.7 weeks. Weight bearing is allowed one month after the plaster has been removed.

Secondary procedures were necessary in eighteen cases, consisting in manipulation, osteotomies (subtrochanteric, supracondylar), the setting down of the trochanter, or a Soutter operation. In one case drainage had to be instituted because of suppuration.

The immediate operative results are shown in table 4; primary open reduction was successful in thirty-eight and failed in six hips.

There was primary redislocation in two (reoperation successfully done in one) and primary subluxation in four hips.

TABLE 4.—*General Operative Results*

1. Reduction:			
Primary open reduction successful in			38 (76.30%)
Open reduction failed in			6 (23.64%)
(one responded and failed again)			
2. Retention:			
Primary redislocation (one reoperative success)			2 (5.26%)
Primary subluxation			4 (10.52%)
3. Complications:			
(a) Mortality		1 (2.65%)	
(b) Pneumonia		2 (one death as above)	
(c) Infection		1	
(d) X-ray changes:	Total hip roentgenograms studied 28		
Changes occured in 13 (46.42%)			
Neck	coxa vara	6	
	thickening	4	
	flattening	1	
Head	dissolution	3	
	roughening	2	
	slight slipping	2	

The postoperative mortality consisted of one case (2.65 per cent) from pneumonia; the morbidity, two cases from pneumonia and infection.

The roentgenographic changes observed secondarily following the first attempt by the open reduction were studied in twenty-eight cases and were found to be present in 46.42 per cent. They consisted in coxa vara, coxa plana, absorption and epiphyseal slipping.

Table 5 gives the analysis of operative end results. The report covers twenty-seven cases, or thirty hips. The general average of good and fair results was 70 per cent, and of poor results 30 per cent. At ages up to 6 years sixteen are found satisfactory to four unsatisfactory (75 and 25 per cent). At ages of 6 years or over are found five satisfactory and five poor results, or a ratio of 50:50 per cent.

The unilateral cases show a decided advantage over the bilateral, namely, fourteen satisfactory to three unsatisfactory results, or 84:16 per cent; against the bilateral cases in which operation was performed on both or on either one side with a ratio of 7:6, seven satisfactory to six unsatisfactory hips, or 55:45 per cent.

THE PALLIATIVE METHODS

The indication is conditional both on the actual or probable failure of the closed and the open reduction in older individuals. Of the operations advocated and practiced, the osteoplastic shelf reconstruction is in the foreground. Answers to our questionnaires combining the statistics of Drs. Le Breton, Stern, Conn, H. R. Thomas, McAusland and Miller aggregate sixty-nine hips with fifty-four satisfactory and fifteen unsatisfactory results, or 78:22 per cent. Next to this the osteotomies (Schanz and von Baeyer-Lorenz) are considered valuable. Zahradnicek reports twenty-one good results among thirty cases of Lorenz bifurcation, observed over two years or more; and Hass reported favorably on twenty bifurcation operations. Answers to our questionnaires gave the combined statistics of Drs. Conn, Le Breton, Stern and Gaenslen as twenty-five hips with twenty-one satisfactory, two unsatisfactory results and two undetermined, a proportion of satisfactory results of 91 per cent.

Among the older methods, the transposition is uncertain and unreliable; arthrodesis is an operation favored by British surgeons.

Our material of the palliative treatment comprises fifty-five cases, of which forty-six were treated, twenty-five operatively, comprising thirty-one hips, and twenty conservatively, or twenty-three hips; ten cases were not treated.

Objective indications included irreducibility and failure of retention, or redislocation, age and degree of dislocation, bad limp or positive Trendelenburg symptom. The subjective indications added to the objective mentioned were pain, fatigue and spasm. Of the four patients with objective symptoms alone, nine were shelved, and one had adductor tenotomy. Of the thirty-one patients with subjective as well as objective symptoms, eleven had shelving, three were osteotomized, and two had adductor tenotomy.

Relation of the amount of shortening to the age of the patient was found as follows: Seventy-five per cent of 1 inch of shortening, 52 per cent of 1 to 2 inches of shortening, 88 per cent of 2 to 3 inches of shortening and 100 per cent of more than 3 inches of shortening were 12 years or over.

Table 6 gives the preoperative and postoperative roentgen observations. We found, preoperatively, absorption of head and neck (two cases), the secondary flat acetabulum with small primary socket (twenty-six cases), subluxation (two cases), nearthrosis (one case); postoperatively, the shelf was absorbed in five cases, the shelf was preserved in eleven cases, and checking was not done in four cases.

Table 7 gives the analysis of palliative operations:

1. The end results of the shelving operation according to the time of observation, age and shortening, gave a percentage of satisfactory results of 84.2.

2. This series is too small to be of much statistical value for osteotomy and tenotomies. Four osteotomies (Schanz and Lorenz) gave uniformly satisfactory results, as did also four adductor and flexor tenotomies.

In comparing the intracapsular and extracapsular shelf technic in respect to subsequent mobility of the hip we found that there was no disadvantage in the intracapsular shelving, which was carried out in the majority of the cases (15:5).

The conservative treatment was carried out in a number of cases which, because of age, shortening or lack of subjective complaints, did not seem to be proper material for operation. It was found not without value in a number of cases, particularly the extension shoe and the securing of the pelvis by belt or brace. Of twenty cases so treated, three were followed up for a sufficient length of time; only four failed to show any relief whatever from the mechanical appliances, and in nine the gait was improved and the subjective symptoms relieved.

CONCLUSIONS

1. Summarizing, we can say that the extreme optimism concerning results in the closed method, as it is shown by some German and Italian authors, does not seem to be entirely justified. Results become definitely worse with the duration of the observation period. A systematic after-care and long lasting follow up of

TABLE 5.—*Analysis of End Results in Twenty-Seven Cases (Thirty Hips)*

Results	Satisfactory 70%			Poor 30%
	Excellent	Good	Fair	
1 General average total	6 (20%)	8 (26.66)	7 (23.33)	9 (30%)
2 As to age groups:				
Up to 6 years	6	5	5	4
Six years and over	..	3	2	5
3 As to site of lesion:				
Unilateral	6	5	3	3
Both	..	..	2	6
Bilateral: one	..	3	2	..
4 As to operative technic:				
Simple reduction	6	8	2	4
Shelving	..	..	3	2
Prying trochanter	..	..	1	3
Capsular arthroplasty	..	..	..	..
Whitman	..	..	1	..
5 As to time of observation:				
Up to 1 year	..	2	3	5
Up to 2 years	3	4	4	3
Up to 3 years	1	1	..	..
Up to 4 years	..	1	..	..
Up to 5 years	2	..	..	1

TABLE 6.—*Preoperative and Postoperative Roentgen Observations in Congenital Dislocation of the Hip, Palliative Treatment*

Operation	Hips: Preoperative: Absorption of Head	Hips: Preoperative: Shallow, Secondary Acetabulum and Defect of Head	Hips: Preoperative: Subluxation	Hips: Preoperative: Nearthrosis	Hips: Postoperative: Shelf Present	Hips: Postoperative: Shelf Absent	Angulation: Positive	Angulation: Negative	Number of Roentgenograms	Average Observations, Years
Shelving, 30 cases, 21 hips	2	17	2	0	11	5	..	..	4	2.18
Osteotomies, 5 cases, 4 hips	..	3	..	1	..	..	3	1	..	1.25
							alignm.			
Transposition	..	1	..	..	..	..	1	..	..	0.77
Transp. and fusion	..	1	..	..	..	..	1	..	..	
Trans. troch.	..	1	..	..	..	..	1	..	..	
Tenotomies	..	3	..	..	3	..	..	..	..	2.66
	2	26	2	1	11	5	6	1	4	
	31				30					

the patients is absolutely necessary (roentgenograms should be taken at least twice a year in the first five years after reduction, and at least once a year in the following years). Results of definite significance are given only by patients who, after reduction in childhood, are grown up to manhood and womanhood. These cases will settle the question of functional disability, especially if compared with the nontreated cases of the same age group. Considering the great change which the treatment of congenital dislocation of the hip has undergone since it was initiated by Paci and Lorenz, one must say that the definite proof of the value of the method, expressed in percentages, cannot yet be given. We do not doubt, however, that with the greater precautions in the after-treatment and the perfection of orthopedic means, the cases which come to reduction today have by far a better outlook than those in which reduction was done from ten to fifteen years ago.

2. As open reduction was practiced not as a competitive but as a supplementary method to closed reductions, it must be judged on its own merits and not by anatomic point of view the standard for this type of operation is naturally lower than that for the reductions. Functionally, however, available statistics show an encouraging percentage of acceptable results both for shelf operations and for osteotomies.

ABSTRACT OF DISCUSSION

Dr. Joseph A. Freiberg, Cincinnati: The authors have covered the entire field of treatment of congenital dislocation of the hip; both conservative and surgical treatment has been discussed in a thorough manner and concise data have been given. After a study of 500 cases, Dr. Steindler and his co-workers conclude that a preliminary closed reduction should be attempted within certain age limits. I am entirely in accord with this conclusion. I would stress the importance of early recognition of congenital dislocation of the hip. The earlier it is recognized, the simpler is the treatment. This is a problem of propaganda to the general practitioner rather than to the orthopedic surgeon. The authors do not emphasize sufficiently the importance of palliative operative treatment of congenital dislocation of the hip in the older child. It is their opinion and mine also that palliative operative treatment is preferable to open reduction with the possibility of a resulting stiff hip in the older child.

Table 7.—*Analysis of Operative End Results (Hips) in Congenital Dislocation of the Hip, Palliative Treatment*

	Good				Fair				Poor						
	Number	Average Age, Years	Average Shelving, Years	Average Observation, Years	Number	Average Age, Years	Average Shelving, Years	Average Observation, Years	Number	Average Age, Years	Average Shelving, Years	Average Observation, Years	Total Number	Per Cent Satisfactory	Per Cent Poor
Shelving	10	13	1.21	2.75	6	15.3	1.88	2.28	3	16.3	1.44	1.5	19	84.2	15.8
Osteotomy	3	15.3	1.2	1.16	1	14	3	1.5	..	....	....	....	4	100	....
Tenotomy	2	17	2.75	5	2	14	1.62	1.5	..	....	....	....	4	100	....
Other transposition, transposition and fusion, transposition troch.	..	....	....	....	1	5	1.37	1	3	12.67	1.5	0.94	4	25	75
Total	15				10				6				31		

Standard—Good: walking well, free motion, good endurance; fair, walking better, less limp, more endurance; poor: no better essentially, no increase of endurance.

comparison with the bloodless results. We have tried to keep separate the two fields of indication. Its proper province is the irreducible and irretainable case within the bloodless age limit.

Outside this limit, it does not very materially enlarge the territory of reducible cases, even though our age range was up to 11 years. The fact that beyond 5 years of age the satisfactory result rapidly decreased would indicate that the upper age limit for open reduction in general would be about 8 years. This agrees with Dickson, who recommends open reduction for all patients between 4 and 9.

3. The significance of the palliative methods lies in its preventive effects on the increased functional difficulties during and beyond puberty and on the late sequelae seen in unreduced dislocated hips in middle age, the secondary arthritis due to the static insufficiency.

It seems to us that from this point of view the simple operations, namely, the shelving and the osteotomy, will undoubtedly gain in favor because of the lesser danger of operative failure and of postoperative complications. To date we have no statistics and late end results of palliative operations. In view of the increasing evidence of late degenerative sequelae of the unstable, unreduced hip, it may be assumed that the future will find the indication field of the palliative operation extended rather than restricted. From the

Dr. Samuel L. Robbins, Cleveland: The important conclusion can be drawn from this paper that the cure of a dislocated hip is unfortunately not a reality. Without doubt there persist anatomic imperfections but here, as in other congenital malformations, it is not possible to make perfect organs out of imperfect elements. Not all is finished when a dislocated hip has been replaced. The construction of the hip is a complex work, which must be observed for a long while, especially at the age of puberty, in order to preserve good results, which are unhappily the exception. A girl, aged 13 years, who had bilateral dislocation of the hip replaced at the age of 2, had no pain whatever from the age of 3, no limp and no trouble. Three weeks before the examination, the patient complained of severe pain and instability on the left side. She was well developed and walked about favoring the left side. On reclining, there was no asymmetry noted, except atrophy of 1½ inches on the right side. There was no shortening, and motions on the good side were normal in all directions; on the left side they were limited only at the extremes of motion. Roentgenograms demonstrated the neck to be short and squatty on the good side, the head was mushroomed, and the roof of the acetabulum was oblique. On the ill side the head and neck were well shaped, and there was only a slight obliquity of the roof of the acetabulum. First it was thought that the markers on the x-ray plate were not correct and reexposures were taken. On careful examination of the left side, atrophy of the head of the femur and also of the roof of the acetabulum was found. Because of pain, the child was put in a hip spica, which she wore for eight weeks. After four months, she was able to get along without any pain or limp. Roentgenograms of the left hip showed no atrophy. She has been perfectly well.

I believe that this condition, if overlooked or if neglected, would have resulted in a possible redislocation or of a fragmentation of the head.

DR. ARTHUR STEINDLER, Iowa City: Allow me to say that the greater credit belongs to my associates, Dr. Kulowski and Dr. Freund. I thank Dr. Freiberg for calling attention to the necessity of early recognition and also for taking the stand that he will refrain from attempting the reduction after a certain age limit is reached and content himself with the palliative operations. I also want to thank Dr. Robbins for pointing out again that long-range observations are absolutely necessary.

Clinical Notes, Suggestions and New Instruments

A METHOD OF ARTIFICIAL RESPIRATION ESPECIALLY USEFUL FOR THE PARALYZED PATIENT

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The advent of the Drinker respirator has made possible the prolonged treatment of respiratory paralysis, but the problem still remains of treating the patient until he can be placed in a respirator. Many large institutions keep a respirator always on hand for such emergencies, but it is obviously impossible for the family doctor or smaller hospitals to have one immediately available and some means of artificial respiration must be resorted to. Numerous methods have been described and it is only because in my experience they have at times been unsatisfactory that the following modification is suggested. The older standard methods have been compared [1] and the only one found adequate was the Schafer prone pressure method. This will maintain normal exchange in the ordinary case and is fairly satisfactory except that the repeated pressure on the lower thorax often causes considerable soreness. Most authorities agree that the Schafer method is to be preferred to any type of mechanical device such as the pulmotor or lung motor, and it is the accepted standard method of the American Red Cross Life Saving Corps.

The following illustrates the type of case in which the existing means of artificial respiration, with the exception of the Drinker respirator, are unsatisfactory and explains how this method was developed:

REPORT OF CASE

A youth, aged 18, was admitted on the fourth day of his illness. He had almost complete paralysis of both lower extremities and abdomen, with urinary retention. The arms and neck were moderately affected but respiratory movements were quite good. He was very sensitive to pressure over the entire trunk and extremities. A lumbar puncture was done and the diagnosis of anterior poliomyelitis established. Because the paralysis seemed to be progressing and his temperature ranged from 100 to 102, he was given convalescent serum intraspinally, intravenously and intramuscularly. Two days later he complained of a "tight feeling" in his chest and felt that he could not take as deep a breath as he wished. The excursion of his chest seemed unchanged, his color was good, and he seemed to have good power and control in his thoracic muscles. On the next day at 5 a. m., after a fairly comfortable night, his respirations became slow and shallow. He became cyanotic and in a few minutes lost consciousness. He was given stimulating drugs with some temporary improvement, but he remained slightly cyanotic and respirations were slow and shallow. Respirations became steadily slower until about 7:30, when they practically stopped. The patient was deeply cyanotic and about two or three jerking gasps were produced by the neck muscles each minute. When his pulse began to fail, it was thought that the end was near. He was taken out of his plaster bed, placed on the floor, and artificial respiration by the Schafer prone pressure method was begun. By the use of considerable force a moderate exchange could be obtained. By 8:30 the patient's condition was considerably better, though he was still unconscious and moderately cyanotic. Strong pressure on the lower part of the thorax caused a slight respiration, but the patient was so extensively paralyzed that the chest remained practically in a position of expiration and there was no gasping inspiration like that which usually occurs in a subject who has a normal resilient thorax. Several other methods of artificial respiration were attempted without avail. No method seemed to cause the patient to inspire.

While various maneuvers were being tried it was found that, if the patient's pelvis was lifted upward about 18 inches from the floor by a hand under each anterior superior spine, the back sagged into marked lordosis and a deep gasping inspiration could be heard. This was almost surely produced by the sagging of the abdominal contents in the position of lordosis, causing descent of the diaphragm and consequently a moderately deep inspiration. When the pelvis was released, a long expiration could be heard as the relaxed abdomen came in contact with the floor. An additional pressure on the lower ribs posteriorly after this caused a small additional expiration. Each time this maneuver was repeated the patient's color visibly improved and by 10 a. m. his pulse was strong, his lips were red and he was semiconscious and able to take water and to complain bitterly of his soreness. A respirator could not be obtained before 5 p. m., and for eight hours all types of artificial respiration were attempted. Even with extreme pressure a good color could not be maintained by the Schafer method, but by lifting the patient by the pelvis almost to the knee chest position and then allowing him to flatten out on his abdomen on the hard floor, sufficient exchange could be maintained even though this was done as few as five or six times per minute. As the patient complained of any pressure on the thorax, the Schafer maneuver was omitted.

TABLE 1.—*Exchange Per Minute (Cubic Centimeters)*

Subject	Vital Capacity	Average Normal Minute Volume	Exchange per Minute; Rate 8 per Minute: Schafer Method	Lifting by 1 Man	Lifting by 2 Nurses	Combined Lifting and Schafer Method
S	4,715	7,465	9,575	11,800	9,250	25,000
T	5,600	7,085	7,245	16,155	14,600	20,500
G	2,700	3,800	7,085	8,050	10,750	8,970
B	2,300	3,800	8,550	9,560	8,730	16,260

TABLE 2.—*Exchange Per Respiration (Cubic Centimeters)*

Subject	Vital Capacity	Average Exchange per Normal Respiration	Exchange per Respiration: Schafer Method	Lifting by 1 Man	Lifting by 2 Nurses	Combined Lifting and Schafer Method
S	4,715	622	1,194	1,482	1,156	3,125
T	5,600	885	906	2,019	1,866	2,574
G	2,700	292	861	1,006	1,340	1,121
B	2,300	272	1,069	1,188	1,091	2,044

The patient's general condition improved greatly in the respirator. He was rational within a few hours, but it was three weeks before he made the slightest attempt at voluntary respiration when he was removed from the respirator for periods of one or two minutes at a time for nursing care. At the end of six weeks he could remain out of the respirator indefinitely, but daily periods in it were continued until the patient's vital capacity exceeded 2,000 cc., about one year later.

This experience over a period of eight or ten hours with an almost completely paralyzed subject led me to try this new method on several patients who stopped breathing during the administration of an anesthetic. It was found to be as efficacious as the Schafer method and no more difficult except when the subject was very heavy. It can be done practically as well by two people lifting the pelvis of the subject by the two ends of a folded towel placed under the subject at the level of the groins.

Comparison of the respiratory exchange obtained in normal individuals by different artificial methods is not entirely satisfactory because of the fact that the subject either resists or assists the operator, and any increase in respiratory exchange

1. Clendening, Logan: Modern Methods of Treatment, St. Louis, C. V. Mosby Company, 1924.

above the body requirements will cause inhibition and a decrease will cause an increase in voluntary movements. In spite of this fact, measurements of respiratory exchange in normal subjects obtained by several methods were made and the results are shown in the accompanying tables. A slow rate was used to avoid overventilation, and each method was used only for a period of one minute. Long periods of rest were given between tests to allow the subject to attain normal exchange again. In each instance the exchange obtained by lifting the patient by the pelvis exceeded that obtained by the Schafer method. Combining this procedure with the Schafer method produced an exchange with each respiration which was more than one half of the vital capacity of the subject.

The Schafer method depends on compression of the lower part of the thorax to produce expiration, while the method

Fig. 1.—Position of patient.

described here is directed toward producing adequate descent of the diaphragm and consequently a deep inspiration. The two methods together insure an exchange far exceeding that obtained by either one alone.

DETAILS OF THE METHOD[2]

1. The subject is placed in the prone position on a hard surface as in the Schafer method. It is well to place a folded coat or small pillow beneath the clavicles and upper part of the chest (fig. 1).

2. While sitting on a low chair or kneeling, the operator puts one hand beneath each anterior superior spine and lifts the pelvis well off the ground, so that the back arches and the abdomen sags downward (fig. 2).

Fig. 2.—Procedure by operator.

3. The operator lowers the subject to the floor slowly to his original position. If maximum exchange is desired, the usual Schafer procedure of pressing downward and forward and compressing the chest over the lower ribs is then carried out.

4. This procedure is repeated from six to ten times per minute.

CONCLUSIONS

1. Respiratory failure with extensive flaccid paralysis of the trunk muscles cannot be treated satisfactorily by the Schafer method of artificial respiration.

2. Lifting the pelvis of a subject in the prone position and allowing it to fall back to the floor produces adequate respiratory exchange even in the paralyzed subject.

3. This procedure, combined with the Schafer prone pressure method, produces a remarkably large respiratory exchange.

321 East Forty-Second Street.

2. Mr. G. R. Girdlestone, F.R.C.S., of Oxford, England, made suggestions that led to the use of this method on the patient who was so extensively paralyzed.

SECONDARY ANEMIA COMPLICATED BY AN EXTRADURAL ENDOTHELIOMA OF THE THORACIC SPINAL CORD

EXHIBITING AN UNDESCRIBED PHYSICAL SIGN

FREDERICK R. TAYLOR, M.D., AND W. K. McCAIN, M.D.,
HIGH POINT, N. C.

Cord symptoms due to pernicious anemia, or even to severe grades of secondary anemia, are frequent enough to need no special discussion. In the case about to be described, however, the combination of a moderately severe secondary anemia with spinal cord symptoms suggestive in character, but not in distribution, of those occurring in pernicious anemia, the cord symptoms being due to a nonmalignant extradural tumor, seems sufficiently unusual to warrant description; the more so, perhaps, because a physical sign was discovered by one of us (F. R. T.) by accident that has, so far as we know, not been described before.

Mrs. W. C. C., aged 23, an electrician's wife, came to one of us (W. K. McC.) complaining of difficulty in walking. It was obvious from a preliminary examination that she suffered from an organic neurologic condition, and she was referred to the senior author for further study. Her history was taken on Jan. 27, 1934, and its essential points are as follows:

For the past year she had noticed some difficulty in walking in a straight line. Until recently there had been no real staggering but merely a difficulty in holding her course. She would tend to zigzag, because she was constantly having to correct her direction of progress. She is sure there was no constant deviation to one side only, as she would often bump into either the right or the left side of a doorway while attempting to walk through it. This difficulty did not seem to be due to any visual disturbance. She thought little of it at the time, though it persisted without any new symptoms until about a month before examination. Then she noticed a tickling sensation in the front of both knees, worse in the right, as if insects were crawling over her skin. This lasted about two weeks. Then followed a numbness in both legs from her knees down, worse in the toes and on the right. This had spread upward, till she was numb to some degree up to the waist. During the past two weeks she had felt as if her feet were "asleep" and had had severe difficulty in walking, which condition was rapidly getting worse. She staggered badly and her leg and thigh muscles felt stiff to her. She had had no pain at all, other than occasional inconstant slight backache no worse or different than she had often had most of her life. She had noticed no trouble with her arms or hands and could write or sew as well as ever. However, one of us (W. K. McC.) thought he noted a little clumsiness in her hands as she started to unfasten her dress. She had had no dizziness or tinnitus. Her appetite and digestion were normal. There was a certain degree of constipation but she took no laxatives other than very rarely a dose of salts. She had no difficulty in controlling the bowels or bladder. Her feet felt swollen to her but did not look so, she said. Her backache was lumbosacral and appeared to be associated with the menstrual periods. It was never severe. There were no abnormal urinary symptoms. The periods were regular, every four weeks, and lasted a week; the flow was free, but no more so recently than always, there were no clots, and she did not suffer much with them. There was no suggestion of any acute infection at the onset of the present trouble. Her husband stated that she formerly had an excellent color but recently had been getting very pale, with a somewhat yellowish hue to her skin.

Her past history, habits, and family history threw no light on the case.

The patient was 5 feet 2¾ inches (156 cm.) high and weighed 111¾ pounds (51 Kg.). The temperature was 98.4 F. The pulse was 88 and of normal rhythm and quality; respirations, 22. The blood pressure was 120 systolic, 70 diastolic. The patient was rather strikingly pale, with a slightly yellowish hue. This was hardly the typical lemon yellow of an advanced pernicious anemia. The mucosae, as well as the skin, showed this pallor. There was no jaundice. Her gait was grossly affected, being of a spastic-ataxic type. She could not stand without support, though she did not show the wide preliminary swaying of the usual marked Romberg sign. She simply fell at

once unless supported. This occurred with the eyes open or shut. Vision was 20/30 in both eyes, with some astigmatism, apparently normal, except for a refractive error. The eyegrounds were normal. The cranial nerves were normal. The head, neck and chest showed no abnormalities other than the pallor. The spine showed no tenderness or bulging, but examination disclosed a sign, apparently a reflex, hitherto unknown to us; viz., percussion over the lumbar spine caused a contraction of the adductor muscles of both thighs. With the patient sitting up, this produced a sudden momentary compression of the knees together. The patient herself noticed this, and the result was quite constant when percussion was done over the lumbar vertebrae, but the reaction did not occur when percussion was done over the thoracic or sacral region. There were no neurologic changes above the waist line at this time. The abdomen showed no evidence of visceral disease. Pelvic examination by one of us (W. K. McC.) was negative except for the fact that it was difficult to make, owing to marked adductor spasm of the thighs.

The patellar reflexes were exaggerated to an extreme degree; ankle clonus was marked on the left, doubtful on the right. The Babinski reflex was positive on both sides. There was hypesthesia for touch anteriorly from the level of the umbilicus to the ends of the toes, and for pain and temperature from the middle of the thighs anteriorly down. Posteriorly, sensation appeared to be normal. In other words, the lumbar root distribution was affected on both sides, the sacral on neither. The symmetry of the involvement was quite remarkable. The sense of position seemed normal.

The urine was normal. Blood examination revealed hemoglobin, 55 per cent; red blood cells 3,500,000; white blood cells not counted; polymorphonuclears, 67 per cent; lymphocytes, 25 per cent; large mononuclears, 5 per cent; transitionals, 2 per cent; eosinophils, 0; basophils, 0. No blasts were found, but marked anisocytosis and poikilocytosis were present. There were no plasmodia. The Wassermann reaction was negative.

The picture seemed so unusual that an absolute diagnosis could not be made at this time, but one of us (F. R. T.) felt that a few days of observation under extralin treatment would do no harm, and an atypical pernicious anemia seemed a possibility, though the definite level and rapid development of symptoms made that diagnosis difficult to defend.

We saw the patient again four days later, and not only was she no better, but the level of sensory disturbances had risen about three inches. Then we made a definite diagnosis of tumor of the spinal cord and referred her to the Duke University Hospital at Durham, N. C., for further study, and, if deemed wise, operation to remove the tumor.

At Duke she was examined by Dr. Frederic M. Hanes, professor of medicine, and he agreed with the diagnosis, though no cause for the anemia was found. After a few days of observation and building up, she was transferred to the surgical service of Prof. Deryl Hart, who operated on her, February 13. Previous to this a cisternal injection of iodized poppy-seed oil had been done, which showed a definite subarachnoid block at the level of the fourth, fifth and sixth thoracic vertebrae. An extradural tumor was found, springing from the outer surface of the dura, which almost encircled the cord, involving the anterior and posterior roots on both sides, in the region of the fifth and sixth thoracic vertebrae. It was of unusual difficulty to remove, but after long patient work, involving removal of part of the dura and covering the exposed cord with fascia, the operation was completed. The pathologist's report was endothelioma. Our latest information is to the effect that the patient is rapidly regaining motion and sensation where these were impaired, and complete cure is hoped for.

COMMENT

Having seen the tumor in situ, we find it difficult, if not impossible, to explain the absence of pain. Before operation we thought of the possibility of an intramedullary tumor, but had this been present it is highly probable that the pathways going through the sacral roots would be involved also, with sensory disturbances posteriorly, sphincter disturbances, and so on. During her stay in the hospital before operation, the anterior sensory symptoms kept rising higher till they reached a level near the nipples. She also began to show very slight incontinence of urine. The adductor spasm resulting from percussion over the lumbar spine is also rather hard to explain. If the tumor caused it, as presumably it did, why did not percussion over the thoracic spine in the tumor region also produce it? We do not know. We merely record the fact.

Pernicious anemia explains the great majority of cases of severe anemia with cord symptoms but appears to have been excluded in this case, though it was considered for a few days as possibly the sole diagnosis. The association of a rather severe anemia of obscure cause with a benign tumor of the cord is unique in our experience and seems worthy of record.

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Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—*In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.*—ED.

ULCER THERAPY

An ulcer is a defect of the body surface entailing the loss of at least its epidermal covering. It may or may not be infected. It may be large or small, deep or shallow, acute or chronic, painless or painful, with exuberant granulations, indolent or indurated. It may show a tendency to spread owing to virulent infection such as chancroid, to granulomas such as syphilis, tuberculosis or lepra, to malignant disease such as carcinoma or sarcoma, or merely because of malnutrition of the tissues. In accordance with these different conditions, various ulcers need different treatment.

Because of the special therapy that they require, all ulcers with a tendency to spreading and ulcers in special locations will be eliminated from this discussion, as these will be discussed under their respective headings such as corneal ulcer, peptic ulcer, ulcers of the colon and fissure of the rectum, as well as varicose ulcer or chancroid (q. v.).

CLEANING UP

According to the definition that infection means the "successful invasion of tissue by micro-organisms," disinfection of an ulcer is possible only by sacrificing the invaded tissue in order to destroy the invaders at the same time: for no agent is known as yet that will kill bacterial cells without at the same time destroying the more highly organized tissue cells, when these two are in intimate relation to each other. As such treatment will make the ulcer larger than it was before, it is justified only in ulcers that have a tendency to spread because of progressive invasion, as chancroid (q. v.) or lupus (q. v.), though even in these conditions gross cauterization is being abandoned. When, on the other hand, spreading ulceration is due to loss of proper blood or nerve supply, as in arterial thrombosis of the legs or in perforating ulcer of the foot, the use of disinfectants would merely add grave chemical injury to tissue dying from intrinsic deficiency of nutrition and would increase the damage.

Drainage, i. e., encouraging the discharge, is the chief measure for removing infection with minimum harm to the invaded tissue. In providing drainage one is reinforcing a curative tendency of nature. Drainage is indicated when an ulcer is acutely inflamed, its surface is secreting profusely, and its edges are infiltrated. After it is cleansed as far as possible with Solution of Hydrogen Dioxide, it is treated with hot Boric Acid dressings, under water-proof covering, which are changed two hourly during the day and every four hours during the night, until healthy granulations have made their appearance and the infiltration of the edges has largely disappeared. Superior probably to the hot boric dressing is the hot 10 per cent Magnesium Sulphate solution compress, which, being hypertonic, not only prevents maceration but also, by the exosmotic currents it induces, aids in the cleaning up process; and it is analgesic besides. For foul-smelling sores, constant immersion for a time in a warm (95 to 100 F.) dilute solution of Potassium Permanganate is the quickest way of rendering them inoffensive. The solution is made and kept rose colored. Frequent irrigation with such solution is next best. After the odor has been overcome, hot boric dressings may be applied. An exception to the employment of macerating (occlusive) moist dressings must be made in case of ulcers surrounded by dermatitis. So-called eczematous ulcers require uncovered compresses. For moistening these, Solution of Aluminum Subacetate, diluted 1 to 10, might be the most useful primary dressing to be followed, as soon as the ulcer appears clean, by whatever local treatment the surrounding eczema (q. v.) calls for.

Once a shining granulating surface has been secured, it is fairly resistant to infection, so long as this surface is not traumatized, as occurs e. g., on pulling off adherent dressings, which also delays the healing. Hence one of the most important principles in the treatment of all ulcers is the prevention of the sticking of dressings. Moist dressings accomplish this only so long as they are moist. They must therefore be renewed at intervals of not more than three or four hours. Moist dressings should not be continued, however, longer than is necessary to "clean up" the ulcer, for they are also responsible for waste of a great deal of reparative material. So long as there is infection, this sacrifice is necessary. As soon as the need for antiseptic therapy has ceased, moist dressings should be discontinued. Dry absorbent dressings are even more objectionable because, in addition to draining away a lot of reparative material, they become adherent to the surface, so that on daily renewal of the dressing a day's growth of reparative cells may be pulled off, thus delaying the healing indefinitely while inflicting pain on the patient, who comes to dread the dressing ordeal.

PROTECTION

When an ulcer is or has become fairly clean, its chief need is some form of protection to act in the place of the epidermis, the missing natural protectant against physical injury and infection.

(*a*) John E. Cannaday advocates wire gauze screens to protect ulcers and allow contact with air to minimize drainage and promote healing while permitting exposure of ulcers to warm, dry air and to sunshine or to electric light treatment, if the former is not available.

Light "mouse proof" wire mesh is cut to the size necessary to make an adequate shield over the wound. The edges are bound with adhesive plaster and shaped so as to fit about the wound, at times holding the edge away from the area by means of a felt support, as for instance in case of a screen encircling the finger. These screens are anchored in place by pieces of adhesive plaster or otherwise.

Absorbent dressings do no harm on a wound in which no raw surface is exposed; but, if a raw surface is present, they do a great deal of harm. The contact of absorbent dressings with granulating surfaces causes a foreign body reaction: a profuse discharge that wastes reparative material. It keeps the skin edges in a moist, macerated and water-logged condition and macerated epithelium does not mature well. The tearing away of epithelial new growth with adherent dressings still further delays healing. The longer healing is postponed, the more fibrous scar tissue forms, which still further discourages the reparative process. The ideal condition for epithelization consists of a clean wound covered with a dry, well adherent scab that remains in situ, undisturbed, until healing is complete, at which time spontaneous detachment occurs.

(*b*) The paraffin film expedites healing probably more than any other dressing by furnishing more physiologic condition for healing. It is firmer and gives a better immobilization of the part and support to the growing epithelium than most others. It protects the surface cells against drying, which, being an enemy to cell life, makes proliferation of the surface cells impossible and, thus delays healing. Indeed, in all air exposure dressings, surface cells are killed and these form the protective film essential for the growth of the cells beneath. Applied as the paraffin film is to extend well over the healthy skin, it soon becomes lifted off the raw surface by accumulation of exudate. This fluid furnishes the best possible culture medium for the proliferating tissue cells. At the same time there is less exudate than with absorbent dressings, either dry or wet, so that healing occurs with comparatively little waste of reparative material. Being perfectly bland, the paraffin does not kill cells as do most antiseptic dressings and as even drying does; nor are the living cells likely to be pulled off or damaged, as occurs with adherent dressings.

"Surgical Paraffin" (of a melting point at or below 50 C.) is employed for this dressing. Medication with antiseptics is useless, as the paraffin hermetically seals the chemical against access of solvent. The paraffin, shaved or broken into small pieces, is put into a perfectly dry sterilized receptacle, which, well covered to prevent water from splashing into it, is placed in a larger vessel partly filled with water that is kept boiling until nearly all the paraffin is melted. Should water get into the melted paraffin, it may cause a burn when the dressing is applied. Before applying it, one should take the temperature of the melted paraffin or else test by dropping a little of it on the back of one's hand. It is not likely to be too hot if there is still some unmelted paraffin present. The ulcer is carefully cleaned by aseptic or antiseptic irrigation and the removal of loose dead tissue. One then dries it by laying a piece of sterile gauze over it, gently touching and blotting the gauze by wads of dry gauze or cotton. The surface should never be wiped, and care should be exercised to avoid bleeding or infection. The use of a hot air douche to expedite drying is convenient but not essential. To minimize the distress caused from the application of the first coat of melted paraffin to the sensitive raw surface, the latter is painted first with

sterile Liquid Petrolatum. Over this a thin layer of sterile cotton is applied, which is followed by a film of the melted paraffin laid on by a series of gentle pats, rather than by painting it on. The dressing should be carried half an inch or more over the healthy skin, to which it adheres, completely sealing the wound. The skin being more sensitive than a raw surface, patients may complain of pain when the application to the skin is made. However, provided the temperature is at or near the melting point of paraffin, there is little danger of a burn. After the first film has been gently laid on, a second fairly thick layer may be applied by painting. The dressing may now be finished by covering it with a gauze bandage, or else a piece of gauze may be placed over the paraffin and a muslin roller bandage put on.

At first the dressing needs to be changed once every twenty-four hours; later it may be left in place for forty-eight hours or longer. In removing the dressing, it is best to slit it through with scissors, taking care, of course, not to wound the raw surface. Owing to the accumulation of fluid underneath it, the film may then be rolled back without the least pain or danger to the ulcer. A fresh dressing is then reapplied. If pus accumulates under the paraffin film, as it may if the ulcer is not sufficiently aseptic—for the serum accumulating under the film is a good culture medium not only for cells but also for microbes—or if other local or systemic symptoms of infection manifest themselves,

PRESCRIPTION 1.—*Petrolatum Cerate*

℞ Paraffin ..... 30.00 Gm.
Petrolatum ..... 60.00 Gm.
Mix by melting and sterilize.
Spread on gauze in a sterile manner and apply to ulcer.

application of moist dressings for a few days is required.

(*c*) As cerate is a salve of a melting point higher than the temperature of the human body surface, dressing an ulcer with such a preparation is superior to using Castor Oil or Petrolatum. The latter melts at body temperature and both soak through the dressing rather than stay on the surface where the fatty film is needed. As good as any preparation for the purpose is a mixture of Paraffin one part and Petrolatum two parts (prescription 1), which is less troublesome to apply than the paraffin film but probably not quite so efficient, as it does not retain the wound secretion, the "culture medium for cells," quite as well. If the raw surface is not very extensive, cerate serves well enough. If the ulcer is painful, 10 per cent of ethyl aminobenzoate (anesthesine) may be incorporated with advantage (see prescription 4, Therapy of Pain).

(*d*) Silver foil has been suggested as a dressing especially suitable for deep burns of limited extent, such as those resulting from electric currents. Silver foil clings to the surface, it is bacteriostatic, it forms a closed moist chamber for accumulation of wound secretion to serve as a culture medium for the proliferating cells, it keeps dressings from sticking, and it is remarkably analgesic. Keloid formation seems to be less marked under this than under almost any other treatment.

STIMULATING GROWTH OF CONNECTIVE TISSUE

While the rather fresh raw surface of an acute ulcer is too sensitive to tolerate the application of anything other than bland protectants such as those described, there soon comes a time when healing can be accelerated by increasing the blood supply and stimulating the proliferation of cells. Such stimulative treatment is demanded by the indolent ulcer, i. e., an ulcer that remains without signs of healing and shows no tendency to exuberant granulations or to callous margin formation. All irritants of appropriate strength stimulate the growth of connective tissue and most of them favor its growth more than they do the proliferation of the epithelial cells, probably because the latter are more highly organized than the former. If the employment of nonspecific irritants is continued too long, exuberant granulations, which delay final healing, may soon have to be contended with. Until the ulcer bed is well filled, such irritants are indicated. Their use must be discontinued as soon as a tendency to exuberant granulations manifests itself.

(*a*) Radiant energy is especially indicated in the treatment of extensive ulcers, e. g., burns (q. v.), particularly if the part seems to be poorly supplied with blood. Then more or less continuous direct exposure to the heat of the electric "bake" or "cradle" may be the most convenient way of accomplishing the result. Ultraviolet rays or sunshine must be dosed more carefully. The latter rays are probably indicated especially when a remnant of infection must be cleared up, for they may have a certain degree of antiseptic value. For fresh granulations not more than a mild erythema dose is advisable. When the local reaction has disappeared, another exposure may be given, usually in about a week. Excessive exposure may produce necrosis. In chronic fibrous lesions, massive dosage may be required so as to secure an intense reaction even to the degree of destroying the unhealthy tissue and securing a fresh granulating surface. As granulating surfaces are more sensitive to radiant energy than the skin, dosage for them must be more carefully regulated. The wire screen dressing is especially suitable when the use of radiant energy is contemplated.

(*b*) Rosin Cerate, by reason of the small amount of turpentine contained in the rosin, might be used as the succedaneum to the petrolatum cerate as soon as the initial irritability of the ulcer has subsided. Among all the possible irritants that might be used for stronger action, Balsam of Peru might be said to be "time honored," especially in the treatment of bed sores. Its disadvantages are that it has an odor which becomes objectionable when continually under one's nose and that it produces a rather indelible stain on fabrics. On the other hand, it is not only a good stimulant to healing but also bacteriostatic and keeps dressings from sticking. It might be added in varying proportions to rosin cerate. It may be used in the form of a paste with Zinc Oxide (prescription 2) or mixed with Castor Oil in various proportions, e. g., equal parts; and is soon tolerated in full strength, poured directly on the sore or as "Balsam Gauze," i. e., gauze strips impregnated with Balsam of Peru, that are then covered with wire screen or absorbent dressing according to the amount of discharge. When applied too strong, it produces an initial stinging and burning sensation. Compound Tincture of Benzoin (the "friar's balsam" of the Middle Ages) forms, after evaporation of the alcohol, a varnish that is not only protective but also stimulant to healing. It is especially suitable as a dressing for rather small and somewhat indolent sores.

(*c*) Sympathectomy, periarterial or otherwise, may cause prompt healing of a particularly refractory ulcer,

STIMULATING EPITHELIAL GROWTH

As an ulcer is not healed until completely covered with epidermis, the problem presents itself not infrequently of stimulating the multiplication and maturation of epidermal cells. Reducing agents have a special reputation for having this effect. Can it be that, by lessening the supply of available oxygen, they make the developing cell act as though it were farther away from the blood supply than it really is and undergo earlier keratinization? Scarlet red ointment is used in 5 per cent strength. It probably has its best use applied

Prescription 2.—*Balsam of Peru Paste*

℞	Balsam of peru	10.00 Gm.
	Zinc oxide	40.00 Gm.
	Castor oil	50.00 cc.

Mix. Label: Spread on gauze and apply to ulcer.

merely to the growing epithelial margin for a day or two alternating with soothing ointment. Gauze may be impregnated with scarlet red ointment or a compound (prescription 3) as especially recommended by Adalbert G. Bettman (1931) for preparing ulcers for skin grafting and for favoring the "taking of the grafts." Short pieces of the red gauze are cut and laid directly on the wound, completely covering it with a single layer. A sufficient layer of dry sterile gauze is applied and the whole kept in place with a bandage. When discharge appears at the surface of the dressing the outer layer

Prescription 3.—*Compound Scarlet Red Ointment*

℞	Oxyquinoline sulphate	0.60 Gm.
	Chlorbutanol	2.40 Gm.
	Liquid petrolatum	4.00 cc.
	Scarlet red ointment, 5 per cent	120.00 Gm.

Mix, melt and immerse rolled gauze bandage until all bubbling has ceased. When cool, it is ready for use. It keeps well. The outer layer or two of the bandage is discarded, as it is completely covered with ointment, and only that portion of the gauze is used whose interstices are open.

This prescription may be unnecessarily complicated. Scarlet red ointment applied in the same manner in gauze bandage works quite well.

is changed, but the red gauze is left in place until it comes off easily, which may not be until complete epithelization has occurred. Thiocresol compresses, advocated of late (Reimann, 1930), probably deserve trial in extensive ulcers. Because thiocresol is very unstable, it should be always freshly prepared in a 1 : 10,000 dilution (prescription 4). It is poured on sterile gauze, which is applied directly to the wound and covered with waterproof material, so that changing of the dressing may not be required oftener than every two hours. Such dressings are best alternated after forty-eight hour

Prescription 4.—*Thiocresol Stock Solution*

℞	Thiocresol	0.10 Gm.
	Alcohol	50.00 cc.

Mix. Label. Mix 5 cc. with 100 cc. of distilled water to give a 1:10,000 dilution. Prepare fresh solution for each change of compress.

periods with simple dressings, such as compresses of Physiologic Solution of Sodium Chloride. The chief disadvantage of thiocresol is its offensive smell.

REMOVING IMPEDIMENTS TO HEALING

In disease, as in warfare, conditions change so that what may have been correct tactics one day may be wrong a few days later. The three most important impediments to healing are: (1) exuberant granulations, (2) a callous ulcer margin and (3) ulceration completely encircling a limb.

1. Exuberant granulations have to be destroyed and then restrained from redeveloping. There may be a sufficient growth of them in neglected cases to require curettement or even trimming off with scissors.

(*a*) Silver Nitrate cauterization usually suffices to restrain their growth, if applied once or twice a week. In applying the lunar caustic stick or crystal, one must keep a respectful distance away from the visible epithelial margin. Indeed, if one looks sharply, one may distinguish the zone of advancing epithelial cells as a dull pearly haze in contrast with the shining naked granulations. It is easy to sacrifice this microscopic layer of pioneer epithelial cells and with it the prospect of early healing. One "thorough" cauterization may set healing back by a week. When a tendency to exuberant granulations manifests itself, the dressing should be merely protective (as described under Protection), excepting as far as stimulation of epithelization is concerned.

(*b*) An exception to this rule occurs in case of anemic ulcers with pale, flabby granulations. In these the stimulating astringency of the Copper Sulphate crystal or even of Zinc Chloride is preferable to silver nitrate cauterization. It should be followed by dry treatment, e. g., dusting with Thymol Iodide, and a compression bandage.

(*c*) For restraining the development of exuberant granulations there is nothing better than the compression bandage, which also seems to favor ingrowth of epithelium. It is secured either by firm strapping with elastic adhesive plaster, applied directly over the naked granulations and a liberal area of the surrounding skin; or else, if moist or cerate dressing is desired, a rubber sponge may be incorporated under a firmly applied bandage (cf. varicose veins).

2. The callous ulcer, with edges of indurated edema of often cartilaginous hardness, cannot heal so long as the induration is permitted to remain. It indicates the use of:

(*a*) Hydrotherapy. Hot circular compresses, covered for maximum effect with waterproof material continued possibly for several days, may produce a macerating effect on the tissues and increase the blood supply to the part to such an extent as to alter the immediate aspect of the ulcer as well as its ultimate prospect of healing. Local hypodermoclysis of Physiologic Solution of Sodium Chloride into the surrounding tissue may assist this softening effect by its lymphagogue action.

(*b*) Pressure. By means of adhesive plaster, an elastic bandage or a rubber sponge dressing (see varicose veins) accompanied by a fair amount of muscular exercise, so as to exert a pumping action on the circulation, pressure may help in the absorption of the callous margin softened by hydrotherapy, so that these two measures should be used in succession or alternation; e. g., the pressure bandage during the day, the compress during the night.

(*c*) Irradiation. The absorption of the infiltration of the edges may be favored by roentgen rays in fractional doses (140 kilovolts, 0.25 mm. of copper, 1 mm. of aluminum, 75 roentgens) or perhaps more safely by an occasional erythema dose of ultraviolet rays or by daily graduated doses of the sun's rays.

(*d*) Surgery. When the foregoing methods fail, there are two ways of forcing healing, after a thorough curettement. One is to make incisions through the indurated margins, radiating from the center of the ulcer, like the spokes of a wheel. The incisions must penetrate the deep fascia and extend for one or two inches beyond the margins of the ulcer. The other and more usual

method is complete excision of the ulcer, to be followed by skin grafting as soon as healthy granulations have been secured.

3. An ulcer encircling a limb may require amputation if plastic operations fail.

SKIN GRAFTING

Skin grafting is mandatory in the larger defects at the earliest possible moment, i. e., as soon as a bed of healthy granulations of deep red "raw beef" color has been secured, and especially in those ulcers in which cicatricial contraction is liable to lead to deformity. As grafts from another individual (isoplastic grafts) are less likely to take, autoplastic grafts should be preferred. Of the two different methods of skin grafting, the free and the pedicled graft, each has its own indications.

(*a*) The free grafts are taken down through the germinal layer of the epidermis, not deep enough to cause much bleeding. "Seed implants" (Wilhelm Braun, 1920) are the most uniformly successful variety, as they are likely to take even in the presence of infection. The site having been anesthetized by infiltration with 2 per cent solution of Procaine Hydrochloride, the skin to be transplanted is picked up on the point of a hypodermic needle and snipped off with sharp scissors or sheared off with a sharp knife or razor. It is then cut into small pieces, "about half the size of a grain of wheat," and these are implanted deep in the granulating surface about 1 to 1.5 cm. from one another. It does not matter which side is up. Warm Physiologic Solution of Sodium Chloride compresses are applied for two days, to be alternated with thiocresol compresses (prescription 4) for the next two days. In the ambulatory patient, gauze impregnated with compound scarlet red ointment (prescription 3) is used from the very beginning, or else silver foil is applied. If the granulations have a tendency to be exuberant, adhesive plaster strapping or rubber sponge needs to be incorporated in the dressing. The advantages of the seed implants are that they are most economical of skin and that they will take even if the surface is not aseptic. Their disadvantage is that they grow unevenly and ultimately develop into a mottled skin with islands of pale color surrounded by areas of redness. Hence they are not suitable for exposed surfaces. In spite of this it might be well to cover with these seed implants any ulcer larger than a dollar, no matter where located, as it can be made to heal more rapidly by their use. If further plastic surgery is needed it can be done at a later date, the rapid covering of the wound and granulations by these new grafts lessening cicatricial contraction.

Thiersch grafts, in which strips of about half the thickness of the skin are used, have the advantage of quicker healing and of producing a smoother surface than the seed implants and a relatively noncontractile new skin; but they leave a thin and rather vulnerable scar and are less likely to take in the presence of infection. The surface must therefore be carefully prepared for their reception. It must be made as healthy and aseptic as possible and there must be little or no pus. The superficial granulations, if irregular, are curetted away with a very light touch and if a line of cicatrization has formed it is best to remove this, as subsequent ulceration frequently occurs at just this place. All hemorrhage must be thoroughly checked before the grafts are put in place, because blood clots make adhesion impossible and result in infection. The skin from which the graft is to be taken is put on the stretch and, with a keen razor kept wet with Physiologic Solution of Sodium Chloride, strips from 1 up to 12 inches long are removed, transferred to the wound on the razor blade, and spread evenly and closely on the prepared raw surface by means of probes. If it is more convenient, the strips may be temporarily immersed in warm sterile Physiologic Solution of Sodium Chloride. No antiseptic solution must be permitted to come in contact with the grafts. The first thing to be laid on these grafts should be some material that will keep the grafts in place and favor their adhesion to the raw surface without permitting the dressing to stick. This may be found in the red gauze (prescription 3), in silver foil, or in sterile rubber tissue. When the red gauze is used, it is cut into short pieces and the entire surface is covered with it completely, overlapping being reduced to a minimum. A sufficient thickness of dry gauze is then applied to carry away the secretions and protect the wound. With the foil or rubber tissue, gauze impregnated with sterile oil or petrolatum is employed. It is very important to immobilize the part sufficiently to prevent dislodging the grafts, which adhere but slightly to the raw surface during the first few days. Dressings should not be changed for the first four or five days, and dressings that adhere should never be pulled off but left in place until they come away easily.

The full thickness graft is useful when greater flexibility is required than that furnished by the thin grafts. These grafts must be freed from fat and subcutaneous tissue. They must be sutured accurately and under slight tension over an aseptic and dry surface, and firm, even pressure must be maintained over the graft during the period of healing. Their chief disadvantage is that the slightest infection, such as is present in most granulating surfaces, is sufficient to cause necrosis and loss of the graft. Hence it is more suitable in the treatment of scar tissue contractures after an ulcer has healed completely than in the treatment of ulcers as such.

(*b*) The pedicled graft permits transplantation of subcutaneous tissue including fat, which requires its blood vessels to survive. Pedicled grafts are especially indicated in cases in which subcutaneous tissue is required to restore the contour of parts, as in ulcers involving the face. The pedicled graft produces a much more flexible covering than any other kind of graft and hence finds its field of greatest usefulness in cases in which important anatomic structures, such as tendons, blood vessels, nerves, bones or joints, lie exposed in the bottom of the wound. It is more certain to survive, even in the presence of a slight degree of superficial infection. Its technic, being a matter of the art of plastic surgery, would require too much space to be adequately discussed here.

PREVENTION OF CICATRICIAL DEFORMITY

From the very first, the physician having charge of a case of extensive ulceration must take care to prevent deformities due to scar tissue contraction. This is done by:

(*a*) Posturing the affected part, if necessary with the aid of splints or other mechanical devices, so as to force the newly formed tissue to cover the greatest span required by function, e. g., maintaining the arm in full flexion for a large ulcer on the posterior surface of the elbow, thus antagonizing nature's tendency to

economize tissue growth by lessening the size of the ulcer by contraction during the process of cicatrization.

(*b*) Exercise. When joints are involved in the ulcer, the patient, at the time dressings are changed, should put the joint repeatedly through all its possible movements. This is many times best accomplished by performing the exercises in a warm bath.

(*c*) Early skin grafting.

CORRECTION OF SYSTEMIC ABNORMALITIES

Syphilis and diabetes mellitus are two conditions that are particularly prone to interfere with healing processes and that require appropriate treatment. The presence of anemia, nephritis, myxedema, avitaminoses and general malnutrition requires early recognition and energetic treatment, for good tissue growth needs an abundant supply of healthy blood.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

HANOVIA ULTRAVIOLET METERS ACCEPTABLE

The Hanovia Ultraviolet Meter, marketed by the Hanovia Chemical and Manufacturing Company, Newark, N. J., is designed and calibrated for the measurement of the ultraviolet radiation energy of wavelength 3,130 angstroms and shorter from the quartz mercury arc lamp and from the 60 ampere C carbon arc.

The meter consists essentially of a light sensitive cell mounted behind a filter glass transmitting radiations of wavelengths between 2,500 and 4,000 angstroms and a sensitive micro-ammeter for the measurement of the electric current generated within the cell when the cell is exposed to ultraviolet radiations. The photo-electric cell used is of the dry electronic type and should not be confused with the usual photo-electric cells, which require auxiliary electrical circuits and an electrical supply. The photocell used is manufactured by the Weston Electrical Instrument Company of Newark, N. J.

The Hanovia Ultraviolet Meter is available in two forms; namely, an indicating instrument and a recording instrument.

The indicating instrument is portable and completely contained within a quartered grain oak meter box 8½ by 4¼ by 8¼ inches, provided with a cover and a leather handle. Provision is made within the meter box for the target (photocell), an electrical cord for attaching the target to the meter instrument, and an instruction book. The entire instrument weighs 7½ pounds.

The target of the indicating instrument is a light bakelite container, conveniently shaped for handling, and has mounted in its broad surface the filter window, which admits the ultraviolet to the sensitive cell below, and a metal disk on which is inscribed a calibration factor by which all readings on the accompanying micro-ammeter must be multiplied in order that readings may be converted into microwatts per square centimeter of ultraviolet radiation of wavelength 3,130 angstroms and shorter, for the quartz mercury arc. The target is permanently connected electrically to the micro-ammeter, which is provided with multipliers permitting the employment of the ultraviolet meter for a range of intensities extending from about 10 microwatts per square centimeter to about 10,000 microwatts per square centimeter. The instrument is intended for intermittent use.

The Hanovia Recording Ultraviolet Meter is designed for continuous operation and gives a written record of the ultraviolet radiation in the spectral band of wavelength 3,130 angstroms and shorter that falls on the target. The target is essentially the same as that employed in the indicating meter excepting that for continuous operation and for the protection of the cell and filter from humid conditions these elements are sealed within a copper container provided with a transparent quartz window. The recording micro-ammeter employed is the Engelhard Type S (U. S. Weather Bureau Circular Q, 1931). This instrument automatically provides a timed and written record of the ultraviolet energy at half minute intervals on a chart roll.

A special form of the Hanovia Recording Ultraviolet Meter with auxiliary equipment can provide constant voltage regulation for quartz mercury and carbon arcs and, in the instance of the Hanovia quartz mercury arcs operated on the Bird electrical circuit and at initially lower than maximum burner wattages, can correct automatically for any ultraviolet losses resulting from deterioration of the quartz envelop by gradually increasing the burner wattage by increments as the quartz envelop becomes more opaque to the radiation.

The recording ultraviolet meter is normally calibrated for a range of ultraviolet intensities in the band of wavelengths 3,130 angstroms and shorter extending from 100 to 10,000 microwatts per square centimeter. When employed as a control instrument, the meter is frequently calibrated to record the energy as falling on the irradiation surfaces instead of the actual light energy falling on the target. When employed in this manner, the target, the irradiation surfaces and the burner must be located in absolutely fixed positions.

All Hanovia ultraviolet meters are calibrated by the Hanovia research staff employing reference instruments calibrated at the National Bureau of Standards, Washington, D. C. When especially requested (and subject to a reasonable delay), meters may be calibrated at the National Bureau of Standards and supplied with its certificate.

It is claimed that the meter employed with the proper factors and multipliers and recalibrated at the proper time intervals (see later) will give a measure of the ultraviolet energy of wavelength 3,130 angstroms and shorter, from the quartz mercury arc and from the 60 ampere C carbon arc, with an accuracy of plus or minus 5 per cent.

The permanence of the response of the Hanovia Ultraviolet Meter has been established. The photronic cell itself has been found to have a very small fatigue; the response decreases from 2 to 3 per cent with normal temperature increases; there is a continual decrease in sensitivity as the cell ages.

Hanovia Recording Ultraviolet Meter.

These factors are compensated for as follows: The target must be exposed to the radiation for several minutes before a reading is taken. A constant reading (with a constant light source) will then be obtained. Provided the target is not subjected to high temperatures (60 C. and more), the factor of temperature will not enter into the usual measurement because the cell will not warm sufficiently during the brief exposure to result in any readable differences due to temperature effect. In the case of industrial and milk lamps in which the target may be exposed continuously to the radiation, after from three to four hours of operation the response of the cell has decreased the 2 to 3 per cent, and because of the constant intensity feature of these lamps, the ultraviolet intensity actually increases from 2 to 3 per cent above the initial value.

The aging of the cell itself is very slow, extending apparently over years and amounting to a few per cent each year. Recalibration readily accounts and corrects for such changes. It is interesting to note that Prof. Paul Gleason of the department of physics, Colgate University, in the *Review of Scientific Instruments*, October 1932, has reported similar observations for the photronic cell exposed to visible light.

The glass ultraviolet filter employed over the cell has been another point of consideration. All indications have pointed to the solarization of this filter as one of the most important factors influencing the constancy of response of the ultraviolet meter. Presolarization of the glass has been considered as a possible means for eradicating this factor, and experiments are now in progress to determine whether such procedure is productive of practical results.

The micro-ammeters employed are well known instruments of the highest quality. The switches used in the indicating meter are also the best obtainable, but these have in a few instances been responsible for a sudden loss in instrument sensitivity. The recording meter does not employ any switches and so is not subject to such a possible difficulty.

Hanovia Indicating Ultraviolet Meter.

The Hanovia research organization has concluded that the foregoing somewhat troublesome observations were greatly outweighed by the convenience and desirable features of the meter. At the most they would be greatly minimized by frequent recalibration, certainly a recommendation for any quantitative radiation measurement device. With this in mind, each meter at the time it is delivered is accompanied by a "recalibration notice" advising resubmission of the meter to the Hanovia Laboratory at definite time intervals, three and six months, for check and recalibration. The Hanovia Company is so interested in having ultraviolet radiation measurements common practice, and on the same reliable basis as electrical measurements, that it is contracting to do this recalibration without charge to the meter users. Provision is also made for periodic recheck of all recording ultraviolet meters in their working location, and any adjustments that may be necessary can be made without interruption of operation.

Measurements made by the Hanovia Laboratory have indicated that if a target is exposed continuously for 1,000 hours to ultraviolet radiation of wavelengths 3,130 angstroms and shorter, 1,500 mw./cm.², the response of the meter at the end of that time will be decreased by about 25 per cent from the initial value. Since there are 365 days in a year and it seems unlikely that the indicating meter will be used more than an hour per day (actual exposure), 1,000 hours represents about three years' usage. A recalibration of the instrument each three to six months, when so used, should keep the instrument within the desired degree of accuracy, plus or minus 5 per cent.

The target of the recording ultraviolet meter is very likely to be exposed for longer periods daily. The loss in sensitivity per hour is about the same for the recording meter as for the indicating meter, but the loss per day will most certainly be larger. When the recording meter is used for a constant intensity control, the ultraviolet intensity cannot fall below the predetermined value set and indicated on the scale unless the burner has reached the limit of its useful life or the ultraviolet meter has not been recalibrated according to schedule. On the other hand, as a result of the gradual lowered response of the target there results a gradual increase in the burner wattage, and therefore in the ultraviolet output of the lamp, amounting on the average to 2.5 per cent increased intensity per hundred hours of operation. Thus, if the measured intensity were 5,000 mw./cm.² initially, after 100 hours of target exposure the intensity of the lamp would be 5,125 mw./cm.², although the meter record would still indicate an intensity of 5,000 mw./cm.² Since a 10 per cent increase in intensity is within the limits of biologic evaluation, recalibration of the meter every few hundred hours of use will maintain a practical balance.

The Hanovia ultraviolet meters, within the limitations disclosed, are suitable for the measurement of the ultraviolet component of wavelength of 3,130 angstroms and shorter from the quartz mercury arc and from the 60 ampere C carbon arc. The meter may be used for the measurement of other light sources only when specifically calibrated for them. The meter cannot be used for the measurement of the ultraviolet component in sunlight satisfactorily.

The Council investigated this meter in a laboratory and a clinic. The results obtained were substantially the same as reported. The Council, therefore, includes the Hanovia Ultraviolet Meter in its list of accepted devices for physical therapy.

WESTINGHOUSE PHOTO-ELECTRIC RECORDER ACCEPTABLE

Manufacturer, Westinghouse X-Ray Co., Inc., Long Island City, N. Y.

The Westinghouse Photo-Electric Recorder provides a continuous record of the intensity of light. The record furnished is in the form of permanent graphic charts, each recording the rate of intensity every minute during a period of several hours. This instrument is particularly valuable for the recording of intensity in the ultraviolet portion of the spectrum, and it can be supplied to respond only to any of several well defined wavelength bands in this region.

A typical example of the use of this instrument is the measurement and recording of ultraviolet intensity in the irradiation of fluid milk. The graphic charts produced by this instrument can be filed away in chronological order as permanent evidence of the rate of irradiation intensity during every minute of each working day.

The instrument (fig. 1) consists of a light-sensitive photo cell with necessary direct current rectifier for energizing it, a relay tube and condenser circuit through which the photo-electric currents are fed, and a graphic recording mechanism. It is operated from any 60 cycle alternating current wall plug, the total power consumption being about 25 watts. It can also be supplied, on special order, for 25 cycle apparatus. No vacuum tube amplifiers are used.

The instrument is housed in two units, interconnected by a flexible cable. The smaller contains the light-sensitive photo cell, relay tube and condenser. The larger contains the rectifier and chart movement mechanism.

Principle of operation: A photo-electric cell, sensitive to the desired wavelength band in the light spectrum, is supplied with the instrument. Minute electrical currents are passed by the photo cell when exposed to such irradiation, and these currents are proportional to the irradiation intensity in that particular band. These minute currents are used to charge a small condenser, which is connected in parallel with a relay tube.

Fig. 1.—Westinghouse Photo-Electric Recorder.

Every time this condenser is fully charged, the relay tube "spills over," discharging the condenser and sending an impulse to the recorder. Each of these impulses deflects a recording pen on a moving chart (fig. 2), which is ruled at one minute intervals and moves in time with these rulings. The number of deflections per minute, representing the intensity of light, can be read at a glance at any time, and the charts furnish permanent records of the irradiation intensity for every minute of the time during which the process is carried on.

Photo Cell: The photo-electric cell is essentially an evacuated glass envelop, containing a cathode in the form of a metal plate and an anode, or target. Light impinging on the metal plate causes it to emit electrons. If a voltage is applied across the tube between the plate and the anode, the electron stream will be directed from the plate to the anode and an electrical current will therefore flow through the tube. The electron emission from the plate is proportional to the intensity of the light; hence the current passed is also proportional to the light intensity. The voltage across the tube is immaterial and has no bearing on the amount of current flowing.

By proper choice of bulb material and of plate material, photo-electric cells are constructed to be sensitive only to specific bands in the spectrum. Bulb materials, such as glass or Corex, pass the longer wavelengths of light but are opaque

to the shorter wavelengths. On the other hand, plate materials used, such as tungsten, titanium and thorium, have exactly the opposite characteristics, responding in various degrees to the shorter wavelengths. Hence, by choice of a suitable combination of bulb material and plate material, a photo-electric cell more sensitive to a particular section of the spectrum can be constructed.

Three of the standard cells available for use in measuring intensity in the ultraviolet region are as follows:

(a) A cell with a thorium plate and Corex-D bulb, sensitive within a range of 3,200 to 3,700 angstrom units.

(b) A cell with a titanium plate and Corex-D bulb, sensitive within a range of 2,700 to 3,200 angstrom units.

(c) A cell with a tungsten plate and bulb having an extremely thin indrawn-bubble glass window, sensitive within the range below 2,700 angstrom units.

The first two of these cells are mounted behind Corex windows in the photo cell housing. These windows not only keep the photo cell housing dust tight but also are factors in the fixing of the sensitivity range. With the third cell, no window is interposed in front of the bulb to avoid filtering out of radiation in the region of the spectrum to which this cell is sensitive.

Recorder: The recorder charts are of the disk type, and the record appears as a spiral line with the condenser discharge marks crossing it. One chart provides a complete, totally visible record for several hours. The chart is marked off with radial lines one minute apart and is rotated by a clock-type synchronous motor, which, of course, insures very precise timing. Ordinarily, the calibration is such that between five and ten condenser discharges occur each minute, and it is therefore only necessary to glance at a chart to see whether any serious discrepancies in light intensity have occurred. The length of the condenser discharge marks may change because of line voltage fluctuations or variations of friction of the pen on the paper, but this is of no consequence, as the number of discharge marks per unit of time is the only pertinent factor.

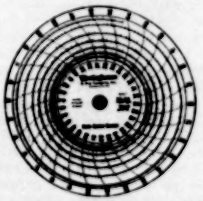

Fig. 2.—Recorder chart.

In the lower part of the recorder housing is mounted the rectifier for the direct current voltage required to operate the photo-electric cell. A type 80 rectifier is used.

Installation: The photo cell housing is set up at the calibration distance from the light source in such a position that it will be reasonably free from dust and moisture. The window through which the light enters must, of course, be kept clean. The recorder housing is mounted on a wall at any convenient place, and a plug inserted in an alternating current wall receptacle. The cable connecting the photo cell housing to the recorder is provided with a plug permitting the use of an extension cable, if necessary.

To start operation of the recorder, a blank chart is inserted and ink placed in the recording pen. Simple adjustments are provided for locating the pen at the proper position on the chart to correspond with the time at which the record is started. Turning the main switch in the recorder housing to the "on" position starts the apparatus. To stop it, it is necessary only to shut off the switch.

The following units are available:

Photo-Electric Recorder, W-6095, for ultraviolet radiation, complete including photo cell housing, relay tube, graphic recorder and 100 recording charts, for operation on 110 volts, 60 cycles, alternating current.

W-6096: Same as W-6095, but for operation on 110 volts, 25 cycles, alternating current.

Any one of the three different types of photo cells aforementioned are available.

The Council on Physical Therapy, therefore, voted to include the Westinghouse Photo-Electric Recorder in the list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. PAUL NICHOLAS LEECH, Secretary.

VEGEMUCENE NOT ACCEPTABLE FOR N. N. R.

Following the introduction of the use of gastric mucin in the treatment of peptic ulcer by S. J. Fogelson of Northwestern University (THE JOURNAL, Feb. 23, 1931) a rather extensive series of clinical reports has appeared. Notwithstanding, the Council is of the opinion that further studies are necessary in order to establish thoroughly the value of such therapy. Workers at the Michael Reese Hospital have recently reported seventeen cases of proved gastric or duodenal ulcer relieved, symptomatically, following the administration of a mucilaginous plant substance (in contradistinction to gastric mucin) (*Illinois M. J.*, October 1933). The material used in this work consists of powdered dehydrated okra, now marketed under the name of VegeMucene by BioVegetin Products Incorporated, which presented the product to the Council for consideration.

Certain advantages are claimed for VegeMucene over gastric mucin by way of palatability, greater gastric tolerance, and convenience of dosage. Probably all three are valid in a measure, but the clinical studies made of the product, thus far, are so inadequate as to preclude any possibility of arriving at a fair estimate of the therapeutic value of the substance. The name is objectionable, as it implies that the substance is mucinous or mucoid in character, yet it is not a true mucin as the term is ordinarily employed; it resembles mucin in physical properties only. As may be seen from the respective formulas, there is a significant difference chemically. VegeMucene is said to contain water 10-12 per cent, protein 14.4 per cent, fat 1.8 per cent, ash 5.4 per cent and carbohydrate 66.6 per cent. The protein is said to comprise albumins and globulins. On the basis of average analyses of such glycoproteins, the protein nitrogen in VegeMucene could not be greater than 2.4 per cent, whereas that in true mucin is in the neighborhood of 12 per cent. The term "Mucene" is therefore misleading in fact and false by connotation.

Notwithstanding the very limited studies thus far reported of the use of powdered okra in peptic ulcer, the firm states in one of its advertising brochures that:

"Extensive clinical tests have shown VegeMucene to be extremely effective in the treatment of patients suffering from peptic and duodenal ulcer."

It is pointed out that these patients were maintained on a modified ulcer diet which of itself undoubtedly would have effected a significant improvement in the majority of cases. This fact tends to render another exaggerated therapeutic claim more or less invalid:

"VegeMucene causes rapid and effective relief from pain and other associated symptoms of peptic ulcer and duodenal ulcer."

Unless it can be shown conclusively that powdered okra is of benefit in the cure of gastric or duodenal ulcerations, there can be no place for it in the therapy of these conditions; and a series of but seventeen cases is inadequate foundation for critical evaluation of the therapeutic worth of any drug.

However inconclusive and inadequate the available studies of VegeMucene in gastric ulcer, it appears that the product is intended for use in that least adequately controlled of all series of cases, those which do not have the advice of competent gastro-enterologists. The Council has been informed that the Board of Directors of BioVegetin Products, Inc., has taken formal action endorsing lay promotion of VegeMucene. Thus the preparation has been thrust definitely into that vast realm of "ulcer cures" so elaborately exploited to the general public. It should be noted that, even were the product sound therapeutically, acceptable chemically and named rationally, the

policies of the firm, tending as they do to encourage self medication of insidious and dangerous disease, would alone condemn VegeMucene in the eyes of the conscientious practitioner of medicine.

The Council declared VegeMucene not acceptable for New and Nonofficial Remedies, because it is an unoriginal preparation of powdered okra, marketed under a noninformative and misleading proprietary name, and promoted with exaggerated and unwarranted therapeutic claims to the profession and to the public at large.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG, Secretary.

GREEN HILL BRAND MUSHROOMS FANCY BUTTONS—SLICED—SLICED STEMS AND PIECES

Manufacturer.—Green Hill Brand Mushroom Farms, West Chester, Pa., subsidiary of Edw. H. Jacob, Inc., West Chester, Pa.

Description.—Hot house mushrooms; respectively buttons, sliced and sliced stems and pieces; the same as Jacob Mushrooms, Fancy Buttons—Sliced—Sliced Stems and Pieces (THE JOURNAL, Sept. 15, 1934, p. 838).

GAZELLE BRAND SEEDLESS RAISINS HORSESHOE BRAND SEEDLESS RAISINS JOCKEY CLUB BRAND THOMPSON SEEDLESS RAISINS MISSION BRAND THOMPSON SEEDLESS RAISINS PANSY THEY R SEEDLESS BRAND FANCY QUALITY RAISINS ROSEDALE BRAND FANCY QUALITY THOMPSON SEEDLESS RAISINS TEMPLE BRAND THOMPSON SEEDLESS RAISINS TULIP BRAND SEEDLESS RAISINS

Packer.—Guggenhime & Company, San Francisco.

Description.—Sun-dried Thompson seedless grapes.

Preparation.—Raisins, sun dried without artificial heat or chemical treatment, are tested for moisture and sugar content, mechanically separated from the clusters, mechanically graded according to size, freed from foreign material, imperfect fruit and small stems, thoroughly washed in mechanical washers, inspected, treated with high pressure steam to remove excess surface moisture, and automatically packed in cartons.

Analysis (submitted by manufacturer).—

Moisture	17.0
Ash	1.6
Fat (ether extract)	0.2
Protein (N × 6.25)	2.6
Total reducing sugars as dextrose	72.7
Crude fiber	0.9
Carbohydrates other than crude fiber (by difference)	75.9
Titrable acidity as tartaric acid	1.8
*Potential alkalinity—24 (cc. normal acid per 100 grams)	
Copper (Cu)	0.0002
Iron (Fe)	0.005
Magnesium (Mg)	0.08
Manganese (Mn)	0.0004

* Sherman and Gettler; J. Biol. Chem. 11:323, 1912.

Calories.—3.2 per gram; 91 per ounce.

Vitamins.—Fair source of vitamin B (22 Sherman units per ounce).

OSCAR MAYER'S SLICED BACON APPROVED BRAND

Manufacturer.—Oscar Mayer & Company, Chicago.

Description.—United States Government Inspected dry cured, smoked sliced bacon.

Manufacture.—Hog bellies, selected for quality of meat and fat, width, length and thickness, are cut down to uniform size, trimmed and spread on racks over night to bring them to a definite temperature. The bellies are individually rubbed with a curing mixture of salt, sugar, sodium nitrate and sodium nitrite and pressed into a wooden curing box. No pickle is added to hasten the cure. In a few days, moisture from the meat forms a brine with the salt and covers the bellies. This process of dry-curing proceeds for twenty-one days at a temperature of 3 C. The bellies are removed from the brine, soaked in cold water for thirty minutes to leach out the excess salt from the surface tissue, washed, and hung on special frames in the smoke-house, where they are smoked with smoke and fumes of burning hardwood sawdust and gas for from thirty to thirty-six hours at 32-52 C. The bacon is removed from the smoke-house, chilled, skinned, frozen for twenty-four hours, automatically sliced onto a metal conveyor belt, scaled off into one-half pound packs, wrapped in cellophane, check-scaled, and packed in cartons holding twelve one-half pound packages. Before being shipped, the cartons of bacon are chilled.

All equipment, including the dry-curing box, is thoroughly washed each day. The soaking boxes are washed weekly with sodium hypochlorite and the slicing equipment daily. The girls who pack the bacon wash their hands in sodium hypochlorite every half hour. The plant is United States government inspected. Every ingredient in the curing mixture and the manufacturing process are subject to approval by the Bureau of Animal Industry. The bacon is analyzed periodically by this bureau to check the nitrites present, which cannot be in excess of 200 parts per million.

Analysis (submitted by manufacturer).—

	per cent
Moisture	14.1
Ash	4.0
Fat (ether extract)	71.7
Protein (N × 6.25)	7.3

Calories.—6.7 per gram; 190 per ounce.

HALE'S PRIDE STERILIZED UNSWEETENED EVAPORATED MILK

Distributor.—Hale-Halsell Company, McAlester, Okla.

Packer.—Carnation Company, Oconomowoc, Wis.

Description.—Unsweetened, sterilized evaporated milk, the same as Carnation Sterilized, Unsweetened Evaporated Milk (THE JOURNAL, June 14, 1930, p. 1919).

TRISCO FLOUR (BLEACHED)

Manufacturer.—Tri-State Milling Company, Rapid City, S. D.

Description.—Patent flour milled from hard northern spring wheat; bleached.

Manufacture.—Selected hard spring wheat is cleaned, washed, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with benzoyl peroxide and calcium phosphate (one-tenth ounce per barrel).

HOLIDAY OLEOMARGARINE
(CONTAINS 1/10 OF 1% SODIUM BENZOATE)

Manufacturer.—The Best Foods, Inc., New York City.

Description.—Margarine containing hydrogenated coconut and peanut oils, pasteurized milk cultured with lactic acid bacilli, salt, and sodium benzoate (not over 0.1 per cent).

Manufacture.—The same as Nucoa Oleomargarine (THE JOURNAL, April 22, 1933, p. 1238).

Claims of Manufacturer.—For use as a bread spread and as a fat or shortening in baking and cooking or for table purposes.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 26, 1935

PROGRESS OF PLANS FOR ECONOMIC SECURITY

The suggestion made by President Roosevelt in June 1934 that the chief objective of the present Congress would be the enactment of legislation leading to greater economic security for the American people began to find its fulfilment on Jan. 17, 1935. On that day he sent to Congress a message relative to unemployment insurance, old age pensions, federal aid to dependent children, the support of existing mothers' pension systems, appropriations for services for the protection and care of homeless, neglected, dependent and crippled children, and finally additional aid by the federal government to state and local public health agencies and for the strengthening of the federal Public Health Service. As was recently pointed out in an editorial in THE JOURNAL, the problem of sickness insurance is more difficult. Of this the President has just said specifically:

> I am not at this time recommending the adoption of so-called "health insurance," although groups representing the medical profession are cooperating with the federal government in the further study of the subject and definite progress is being made.

Coincident with the message to Congress by the President came a message from the Committee on Economic Security to the President and the report that it submitted to the President. The committee, which includes as chairman Frances E. Perkins, Secretary of Labor, and Henry Morgenthau Jr., Secretary of the Treasury, Homer Cummings, Attorney General, H. A. Wallace, Secretary of Agriculture, and Harry Hopkins, Federal Emergency Relief Administrator, indicates again in its report the difficulties inherent in a sickness insurance program but seems to forecast quite definitely its plans in relationship to this problem. Thus it says:

> As a first measure for meeting the very serious problem of sickness in families with low income we recommend a nation-wide preventive public health program. It should be largely financed by state and local governments and administered by state and local health departments, the federal government to contribute financial and technical aid. The program contemplates (1) grants in aid to be allocated through state departments of health to local areas unable to finance public health programs from state and local resources, (2) direct aid to states in the development of state health services and the training of personnel for state and local health work, and (3) additional personnel in the United States Public Health Service to investigate health problems of interstate or national concern.
>
> The second major step we believe to be the application of the principles of insurance to this problem. We are not prepared at this time to make recommendations for a system of health insurance. We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked these groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter. Elsewhere in our report we state principles on which our study of health insurance is proceeding, which indicate clearly that we contemplate no action that will not be quite as much in the interests of the members of the professions concerned as of the families with low incomes.

The committee proceeds somewhat further along in its report to a brief consideration of so-called health insurance, which still more elaborately hints at what is contemplated. Apparently the technical advisory staff of the Committee on Economic Security has made studies of the compulsory sickness insurance plans already established abroad. It has considered the possibilities of voluntary insurance and rejected them, as well as the possibility of ordinary commercial insurance. It has already, it seems, prepared the basic principles for a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States. These are said to have been submitted to the professional advisory groups organized for the purpose, already described in THE JOURNAL; the advisory groups have requested an extension of time and the extension has been granted until March 1. The statement is made that "arrangements have been effected for close cooperative study between the committee's technical staff and the technical experts of the American Medical Association." In its report submitted to the President, the Committee on Economic Security offers the following information to the professions and to the public as to the main lines along which its studies are proceeding:

> 1. The fundamental goals of health insurance are: (*a*) the provision of adequate health and medical services to the insured population and their families; (*b*) the development of a system whereby people are enabled to budget the costs of wage loss and of medical costs; (*c*) the assurance of reasonably adequate remuneration to medical practitioners and institutions; (*d*) the development under professional auspices of new incentives for improvement in the quality of medical services.
>
> 2. In the administration of the services the medical professions should be accorded responsibility for the control of professional personnel and procedures and for the maintenance and improvement of the quality of service; practitioners should have broad freedom to engage in insurance practice, to accept or reject patients, and to choose the procedure of remuneration for their services; insured persons should have freedom to choose their physicians and institutions; and the insurance plan shall recognize the continuance of the private practice of medicine and of the allied professions.

3. Health insurance shall exclude commercial or any other intermediary agents between the insured population and the professional agencies which serve them.

4. The insurance benefits must be considered in two broad classes: (*a*) cash payments in partial replacement of wage loss due to sickness and for maternity cases, and (*b*) health and medical services.

5. The administration of cash payments should be designed along the same general lines as for unemployment insurance and, so far as may be practical, should be linked with the administration of unemployment benefits.

6. The administration of health and medical services should be designed on a state-wide basis, under a federal law of a permissive character. The administrative provisions should be adapted to agricultural and sparsely settled areas as well as to industrial sections, through the use of alternative procedures in raising the funds and furnishing the services.

7. The costs of cash payments to serve in partial replacement of wage loss are estimated as from 1 to 1.5 per cent of pay roll.

8. The costs of health and medical services, under health insurance, for the employed population with family earnings up to $3,000 a year, is not primarily a problem of finding new funds but of budgeting present expenditures, so that each family or worker carries an average risk rather than an uncertain risk. The population to be covered is accustomed to expend, on the average, about 4.5 per cent of its income for medical care.

9. Existing health and medical services provided by public funds for certain diseases or for entire populations should be correlated with the services required under the contributory plan of health insurance.

10. Health and medical services for persons without income, now mainly provided by public funds, could be absorbed into a contributory insurance system through the payment by relief or other public agencies of adjusted contributions for these classes.

11. The rôle of the federal government is conceived to be principally (*a*) to establish minimum standards for health insurance practice and (*b*) to provide subsidies, grants or other financial aids or incentives to states which undertake the development of health insurance systems which meet the federal standards.

Promptly on the submission of these messages and reports to the Congress of the United States, Senator Wagner of New York submitted in the Senate S. 1130, which is known as the Wagner Bill for Social Insurance. It covers specifically old age assistance, aid to dependent children, earnings and employment excise taxes. It sets up a social insurance board composed of three persons appointed by the President, to be a part of the Department of Labor. This board is authorized, with the approval of the Secretary of Labor, to appoint and fix compensation of all officers, attorneys and experts needed, without regard to civil service laws. Under this board will come the control of old age insurance, unemployment compensation, accident compensation, health insurance and related subjects. Annuity certificates and taxes on payrolls of 3 per cent are provided as means of raising funds.

Under the heading maternity and child welfare, this bill appropriates $4,000,000 annually to enable the federal government to cooperate with the state agencies of health in extending and strengthening services for the health of mothers and children, especially in rural areas and in areas suffering from severe economic distress. This is to be administered by the Department of Labor. Each state is to get $20,000 annually, and $1,000,000 is to be apportioned among states in proportion to the respective live birth rates. The Secretary of Labor may apportion $800,000 among states that are unable to match the federal appropriation. Furthermore, the Secretary of Labor may use the remainder to make special demonstrations and conduct research in maternal care. To secure the federal funds, the states must submit their plans to the Children's Bureau and obtain approval.

For the care of crippled children the Wagner bill provides $3,000,000 annually, to be handled in much the same way as the funds for maternal and child welfare are to be handled, also subject to approval of the Children's Bureau.

For child welfare services $1,500,000 annually is allotted, also distributed and controlled along the same lines.

Finally, the Wagner bill appropriates $10,000,000 annually to be administered by the Bureau of the Public Health Service. The bureau is to allot $8,000,000 to the states in amounts determined on the basis of the need of each state for such assistance, to develop state health services, including the training of personnel for state and local health work and for the purpose of assisting counties or other political subdivisions of the states in maintaining public health programs. The sum of $2,000,000 is to be made available annually to the Public Health Service for the further investigations of diseases and problems of sanitation and related matters.

This, then, is the outline of plans by the federal government for immediate action in relationship to economic security, and also a general outline of what may be anticipated in the way of a system of sickness insurance to be proposed about March 1. It is understood that the Wagner bill is to be a first order of business with the Congress now in session. THE JOURNAL has repeatedly called attention to the political situation, which indicates that any measure proposed by the administration is likely to have legislative approval and to pass speedily into the law of the land.

Physicians will recognize in the plans for maternal and child welfare, and for the care of the crippled, a repetition of the methods operative under the Sheppard-Towner law, except that the money now to be made available is somewhat in excess of what was then used for these purposes.

The work of the United States Public Health Service is worthy of generous support. The amount of money now spent for preventive medicine is insignificant compared to the total budget of the nation for medical purposes.

Readers of THE JOURNAL need not be reminded of the various criticisms that have been brought against the use of federal subsidies to the individual states to

induce legislation by the states. Essentially this provides federal control, because all plans for expenditure must be approved by a federal bureau before the appropriation can be secured. Moreover, the states that fail to cooperate merely deprive themselves in order to make more money available to other states. Finally, most of this important medical work is placed in the Department of Labor, under what is essentially nonmedical control, instead of being correlated under the United States Public Health Service. Again and again, plans have been suggested for gathering together the medical services of the federal government under some single leadership of a medical character; yet these services remain distributed through the Department of the Interior, the Department of Labor, the Department of Agriculture, the Treasury and others. Now it is proposed that the Social Insurance Board shall undertake still other responsibilities, some of which inherently involve medical considerations. Fortunately, all concerned realize the complex character of the problems to be approached and all seem willing to undertake these projects in an experimental manner, subject to such revisions and modifications as may be necessary.

The point of view of the American Medical Association is apparently clear to the Committee on Economic Security. It is the only nongovernmental organization specifically mentioned by name in the Report of the Committee on Economic Security. Moreover, the eleven broad principles outlined by the committee as fundamental to the design of a sound plan of health insurance reflect distinctly the ten principles to control experiments in medical practice adopted by the House of Delegates of the American Medical Association at its meeting in Cleveland last June. Here are recognition of the importance of sustaining the quality of medical service, professional responsibility in administering medical care, free choice of physician and institution, continuance of private practice, exclusion of commercial intermediary agents, state rather than federal control, and other minor factors.

In submitting its eleven principles, may we again point out, the Committee on Economic Security says:

> From the very outset, however, our committee and its staff have recognized that the successful operation of any such plan will depend in large measure upon the provision of sound relations between the insured population and the professional practitioners or institutions furnishing medical services under the insurance plan.

The committee states that it has already submitted this tentative plan to the various professional advisory groups organized for this purpose and it is announced that these advisers will not report until March 1. Time is therefore now available in which the medical profession as a whole, as represented by the American Medical Association, and in smaller units as represented by state and county medical societies, may make its views clear both to the appropriate advisory committees and to the Committee on Economic Security. The American Medical Association has opportunity to present its attitude to these bodies and, indeed, to Congress itself, when eventually legislation is promulgated to make the views of the committee a part of the national administration of our lives.

THE JOURNAL has emphasized repeatedly that no system of medical practice can succeed unless the medical profession gives it whole-hearted support and cooperation. Physicians everywhere must make themselves fully conversant with the trend of the legislation that is proposed so that they may, in turn, enlighten the senators and representatives who speak for them in Congress. We seem to have impressed considerably with our point of view those who are undertaking the development of these new experiments in the conduct of medical care. We must not lose heart. Convinced of the righteousness of our attitude, knowing that the medical profession alone understands the fundamental human factors at the basis of the best medical care, it is our duty to do our utmost to make our point of view prevail. This we must do not only for economic security but also to secure to the American people a continuance of the high quality of medical care that has been theirs up to now.

DIET AND RELIEF

In the establishment of various relief bodies, much consideration has been given to the development of relief rations suitable to the people to whom they are distributed. It has long been known that there are racial differences as well as national habits in relationship to food consumption. Indeed, as was pointed out by Dr. Lafayette B. Mendel[1] before the annual session of the American Medical Association in 1932, definite epochs exist in the evolution of diet. Diets change not only through the introduction of new food substances but also as a result of changing habits and methods of work. In association with the development of motor cars and the introduction of many machines into industry there has been a lessening consumption of carbohydrates. In this connection the story of sugar is of especial interest. In 1823 its annual consumption was 8.8 pounds per person, in 1931 it was 108 pounds, and today it is from 99 to 100 pounds. Such a change in food habits is vitally significant to the industry involved in the production of food. Furthermore, the sophistication of food substances in their manufacture has tended to deprive them more and more of such essential substances as the vitamins and the mineral salts, which, it is realized today, are highly significant for health.

In the provision of any diet it is necessary, if one would have the food consumed by those who require it, to consider not only the essentials such as proper proportions of protein, carbohydrates and fats, mineral salts and vitamins but also those factors of racial taste

1. Mendel, L. B.: The Changing Diet of the American People, J. A. M. A. 99:117 (July 9) 1932.

and preference which have so much to do with the creation or loss of appetite. A study of the foods consumed by people who eat at restaurants in which one can have all one wants of anything on the menu for a fixed price brought out the amazing information that there was less and less choice of heavy foods and more and more of desserts such as ice cream, cake and chocolate éclairs. Experts in the field of nutrition have pointed out repeatedly that it is unsafe to trust the individual to the guidance of the appetite alone, even though some evidence with lower animals indicates that they will satisfy their appetites and at the same time obtain suitable nutrition. Babies and the lower animals are not guided as are adult human beings by what is rather flatteringly called human intellect.

Thus it has been necessary for relief organizations in preparing rations of food for various families to work out lists that will appeal to various racial and national groups. Since there are many different groups in the United States, the Illinois commission found it expedient to develop four standard dietaries, planned for seven persons in a family, and to emphasize to these people the desirability of adding fruits, vegetables, eggs and milk to the materials supplied by relief commissions. The four dietaries are listed as general, southern, Italian and Jewish dietaries. The cereal products in these selections include, for example, spaghetti for all the groups, eliminate macaroni from the southern and Jewish groups, and include extra amounts of macaroni and vermicelli for the Italian group. For example, the general, southern and Jewish lists provide 2 pounds of spaghetti per month, whereas the Italian list includes 15 pounds of spaghetti per month. The general diet provides rather large quantities of navy beans, which are eliminated from the southern diet. The Jewish list fails to include pork and beans but does include four cans of sardines to three in the Italian and general lists and two in the southern list. The southern list includes 4 pounds of salt pork, which is entirely eliminated from the other three lists.

Such considerations are of the greatest importance for physicians who are concerned with the provision of suitable food for the sick. Nutritional benefit, as has been pointed out by H. C. Sherman, comes from what we eat rather than from lists of what we should eat. Money spent for food that is not eaten represents a serious wastage, particularly in a period when economic considerations must dominate many others. Furthermore, the rapid advancement of our knowledge has given opportunity to exploitation by the charlatan and the commercially minded who do not hesitate to abuse the truth in their promotions. The application by scientific medicine of the nutritional knowledge now already available has done much to improve health. The opportunities for the future are limited only by the possible increase of knowledge and the extent of its application.

Current Comment

METASTASES FROM THYROID TUMORS

When malignant thyroid tumors metastasize in distant and unexpected locations, the cells of the primary tumor have usually invaded the blood vessels and have thus been disseminated in the blood stream. In a study of 124 cases of metastatic lesions, Dinsmore and Hicken[1] found that (except for the cervical lymph nodes) the most common site of metastases was the lungs, and next the bones. The theory that the development of the transported cells into large metastatic tumors depends on a correct affinity between the cancer cells and the organ where they lodge would seem to explain the tendency of epithelial tumors of the thyroid to metastasize to bones. It is evident that metastases occur more frequently where the red bone is found, in the skull, vertebrae, pelvic bones, ribs and the proximal end of the humerus and femur. The highly nutritive bone marrow may encourage the growth of the metastatic tumor until it destroys the adjacent bone by pressure and thus produces a pathologic fracture or even invades the soft tissues adjacent to the bone and finally ulcerates through the skin. The first sign of a primary thyroid tumor may be a metastatic tumor in some bone. In such cases the primary tumor may be so small that it can be recognized only by a histologic examination of the metastases in the bone. The unusual sites of metastases of thyroid tumors are the liver, kidneys, brain, heart, and soft tissues of the orbit of the eyes. The concept of the "benign metastasizing goiter," which was encouraged by Cohnheim's case reported in 1876 and in which some still believe, is confusing and should be abandoned. This interesting study, made at the Cleveland Clinic, shows further that accurate diagnosis requires an ever increasing breadth of knowledge.

RETENTION OF MANGANESE

One of the newer points of interest in nutrition pertains to the physiologic importance of chemical elements that are unusual because they occur in the diet in extremely small amounts. Certain of these, notably iodine and iron, are known to be constituents of compounds essential to the normal function of the body; copper and perhaps other metals appear to be concerned rather with certain metabolic processes. Among the latter group, manganese has received considerable attention. Elimination of this element from an otherwise adequate experimental ration has been shown to produce sterility in the male and interference with normal lactation in the female. At birth the concentration of manganese is higher than at any time later, indicating an accumulation in fetal tissues during intra-uterine development. Whereas the amount stored in the tissues can be increased by feeding this element, none was found in the organs of experimental animals consuming a manganese-free ration. Information regarding the biochemical significance of this metal has been extended to human subjects in a recent study by Ever-

1. Dinsmore, R. S., and Hicken, N. F.: Metastases from Malignant Tumors of the Thyroid, Am. J. Surg. 24: 202 (May) 1934.

son and Daniels.[1] Determinations of the retention of manganese in three girls and four boys ranging in age from 3 to 5 years were made over ten day periods while three adequate diets differing only with respect to the content of manganese were being consumed. It was observed that the excretion of the metal in the urine was extremely low. A large part of the manganese was lost in the feces, the proportion varying from 80 to 90 per cent of the amount consumed. With daily intakes of 0.113, 0.158 and 0.307 mg. per kilogram of body weight the retention was 0.01, 0.031 and 0.059 mg. per kilogram of body weight respectively. Assuming that the maximum retention is optimal, the conclusion is reached on the basis of the Iowa study that the diet of children should contain from 0.2 to 0.3 mg. of manganese per kilogram daily. Despite the inevitable limitations to interpretation, these observations provide additional data regarding one aspect of nutrition that is attracting increasing attention.

Medical Economics

RECENT BRITISH HEALTH INSURANCE COSTS

The Fifteenth Annual Report of the Ministry of Health of Great Britain, covering the fiscal years 1933 and 1934, supplies some interesting facts concerning the workings of the British health insurance system.

"The number of insured persons entitled to medical benefits was approximately 15,150,000." There were 15,500 doctors in insurance practice. About 10,000 druggists supplied medicines and appliances. The total cost of medical benefit was £8,420,000 ($42,100,000).[1] These figures show that the average expenditure for medical relief was $2.77 per person annually.

The physicians received, for attending and treating insured persons, £6,077,000 ($30,385,000). According to these figures, insurance physicians received close to $2 per person annually.

In spite of all the restrictions and denunciations of over-medication, the report says:

"There was an increase of nearly 6 per cent in the number of insurance prescriptions dispensed in 1933 as compared with 1932, the numbers rising from 56,081,507 to 59,338,504, and the average number of prescriptions issued per insured person entitled to supplies increased from 4.19 to 4.56.

"The total of the chemists' accounts rose from £1,865,123 ($9,325,615) (in 1932) to £1,985,885 ($9,929,425) (in 1933, representing $0.65 per insured person) and the following movements in the cost of the service also occurred:

	1932	1933
Average ingredient cost (in pence) per prescription	3.394d. ($0.0718)	3.643d. ($0.0728)
Average total cost of drugs and prescribed appliances per insured person entitled to obtain them from chemists	2s. 9½d. ($0.67)	2s. 11½d. ($0.71)

"The above increases were mainly due to the prevalence of influenza during the earlier months of the year."

In addition to these sums a little over $1,000,000 was paid for mileage. The physicians received directly for services approximately $2,000 a year, out of which they were required to pay all their expenses except mileage as noted. Some of them dispensed their own medicines, which accounted for about $900,000 more. Since the mileage and the payments for medicines cover little more than out-of-pocket expenses, the actual gross income remains about $2,000 annually, out of which all other expenses of practice must be paid.

1. Everson, G. J., and Daniels, Amy L.: J. Nutrition 8:497 (Nov.) 1934.

1. The British pound has been uniformly calculated as $5, the shilling as 24 cents and the penny as 2 cents unless otherwise stated.

To be sure, this is not the total income received by the physicians, since the great majority of them had some private practice. The fees for that practice, however, tend to be fixed in most localities at very low rates, owing to the standards set up by the insurance system. Although £9,000 ($45,000) "was set aside to enable country doctors to attend courses of postgraduate study," only £2,830 $14,150) of this was expended. This "enabled 102 doctors to attend short courses of postgraduate study."

Much has been made of the fact that the proposal to abolish regional medical officers was objected to by the insurance practitioners because, it was claimed, these officers were available for consultation purposes. The report shows that only "1,472 'consultation' references were received, 1,443 from societies and 29 from insurance doctors." There has been a continual decline in the number of such references from insurance doctors and these figures would seem to indicate that the number of such consultations was close to the vanishing point.

"The total number of references for advice as to incapacity for work in 1933 was 303,254 (300,769 from Approved Societies, and 2,485 from insurance doctors). Of these references 202,514 (or 40 per cent) related to men, and 300,740 (or 60 per cent) related to women.

"The number of persons actually examined on 'incapacity' references was 268,157. The number who were reported to have received a final certificate before the date fixed for examination was 139,170, and 94,127 others did not attend for examination. Of the persons examined, 188,693 were reported as incapable and 79,464 as not incapable of work."

These figures continue to be a startling commentary on the difficulties of certification. The fact that over half a million such references are made annually in spite of all the regulations and cautionings that have been issued to restrict overcertification seems to be of considerable significance.

The largest single expenditure is still that for cash sickness benefits, which amounted to £9,562,000 ($47,810,000). To this should be added "disablement benefit," which "is practically a continuance of sickness benefit at a reduced rate"[2] and which amounted in 1932-1933 to £5,095,000 ($25,475,000). The total payments for cash benefits is therefore, according to these figures, £14,657,000 ($73,285,000), about $4.92 for each insured person.

Expenditures for Health Service

Service	Expenditure	Total
Public health:		
Hospitals, sanatoriums, dispensaries, etc:		
For tuberculosis	£ 3,600,698	$ 18,003,490
For venereal diseases	439,308	2,196,540
For other diseases (diphtheria, smallpox, etc.)	3,356,044	16,780,220
General hospitals	3,244,895	16,224,475
Notification of disease, general disinfection, etc.	565,824	2,829,120
Salaries, etc., of medical officers of health, sanitary inspectors and health visitors (so far as not allocated to specific services)	1,766,023	8,830,115
Maternity and child welfare	3,012,528	15,062,640
Vaccination	147,416	737,080
Port sanitary service	102,581	512,905
Welfare of the blind	958,693	4,793,465
Other health services	1,210,625	6,053,125
Mental hospitals and patients therein	8,783,502	43,917,510
	£27,188,137	$135,940,685

Some of the proposed sickness insurance laws in this country that are offering much higher cash benefits than are paid in the English system and yet have set aside a smaller proportion of the total resources for this purpose than for medical relief would appear to be courting financial disaster. The total benefits, both cash and medical, and including several unlisted minor expenditures, in 1933 amounted to £26,790,000 ($133,950,000), or approximately $8.92 for each person insured.

The total receipts were £31,946,000 ($159,730,000). Of this, £22,020,000 ($110,100,000) was received from contributions by the insured and their employers. The men pay approximately 9 cents and the women 8 cents weekly, or about $4.50 for the men and $4 for the women annually. This may well be contrasted with the assessments proposed by most of the plans of

2. McCleary, G. F.: National Health Insurance, London, H. K. Lewis & Co., Ltd., 1932, p. 48.

sickness insurance now being urged in this country, which call for employee contributions of from $0.20 to $1.80 weekly.

The cost of administration is given as £4,764,000 ($23,820,000), which is approximately 14.9 per cent of the total receipts of £31,946,000 ($159,730,000). This is two thirds as much as was expended for the payment of physicians and about one fourth of the total cost of medical service and drugs. However, there is much doubt whether this includes a considerable number of expenditures that are performed by other government departments such as the post office, for example, and it does not include many forms of contribution to the health care of insured persons by public and private bodies.

In fact, the expenditures for other forms of medical care are steadily increasing, as is shown by the foregoing table.

Association News

SPECIAL MEETING OF THE HOUSE OF DELEGATES

At the request of the Board of Trustees, a special meeting of the House of Delegates has been called by the Speaker of the House, to meet in Chicago at 10 a. m., Feb. 15, 1935.

THE ATLANTIC CITY SESSION

Hotel Reservations

Hotels in Atlantic City report that many reservations are now being received for the annual session, June 10-14. The local Committee on Hotels, through which all hotel reservations are arranged, will do everything possible to secure the type of accommodations desired. However, it is an obvious advantage to make early application, and as an aid to those expecting to attend the session, a special "Hotel Reservations" page appears in the advertising section (page 41). This lists the hotels of Atlantic City and gives a complete schedule of rates for the various kinds of service. A reservation coupon is also provided, and it is suggested that the form be filled out and mailed at once to insure a better choice of accommodations.

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

January 31. Thirty-Six Thousand Deaths.
February 7. Heart Diseases.
February 14. Heart Valves.

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

January 29. Organizing for Health, Morris Fishbein, M.D.
February 5. Pipes and a Pump, W. W. Bauer, M.D.
February 12. Rheumatism and Gout, Morris Fishbein, M.D.

Special Medical Broadcast Program

The American Medical Association will broadcast on a special program arranged through the courtesy of the National Broadcasting Company over a network of stations, beginning at 6 p. m., eastern standard time, Monday, February 18. The program will include music and three speakers from among physicians in attendance at the Annual Congress on Medical Education and Medical Licensure, meeting in Chicago on that day. The speakers will be introduced by Dr. Morris Fishbein. The speakers and their topics are as follows:

Advancement of Medical Education, Walter L. Bierring, M.D.
The Prolongation of Life, Ray Lyman Wilbur, M.D.
The Battle Against Tuberculosis, Kendall Emerson, M.D.

ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Program of Meetings to be Held in Chicago, February 18 and 19

The thirty-first Annual Congress of the Council on Medical Education and Hospitals of the American Medical Association will be held at the Palmer House, Chicago, February 18 and 19. The Federation of State Medical Boards of the United States will participate in the congress. The program follows:

MONDAY, FEBRUARY 18, 10 A. M.

RAY LYMAN WILBUR, M.D., Presiding

Report of the Council on Medical Education and Hospitals
Ray Lyman Wilbur, M.D., Chairman, Stanford University, Calif.
Should the Number of Professional Students Be Restricted?
Raymond Walters, Litt.D., President, University of Cincinnati.
Discussion: Olin West, M.D., Chicago.
The History of Medical Licensure
Henry E. Sigerist, M.D., Director, Institute of the History of Medicine, Johns Hopkins University, Baltimore.
Discussion: Irving S. Cutter, M.D., Chicago.
The Larger Social Aspects of Medical Education
Richard E. Scammon, Ph.D., Dean of Medical Sciences, University of Minnesota Medical School, Minneapolis.
Discussion: Willard C. Rappleye, M.D., New York.

Red Lacquer Room

MONDAY, FEBRUARY 18, 2 P. M.

FREDERIC A. WASHBURN, M.D., Presiding

Tuberculosis: Institutional and Educational Aspects

Objectives of the Campaign Against Tuberculosis
Kendall Emerson, M.D., Managing Director, National Tuberculosis Association, New York.
Discussion: Henry C. Sweany, M.D., Chicago.
Education of Physicians in Tuberculosis
James Alexander Miller, M.D., Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons, New York.
Discussion: James J. Waring, M.D., Denver.
Some Historical Aspects of Tuberculosis
L. J. Moorman, M.D., Dean, University of Oklahoma School of Medicine, Oklahoma City.
Discussion: Kennon Dunham, M.D., Cincinnati.
Function of the General Hospital in the Treatment of Tuberculosis
J. A. Myers, M.D., Professor of Medicine, Preventive Medicine and Public Health, University of Minnesota, Minneapolis.
Discussion: Edward S. McSweeny, M.D., New York.

Red Lacquer Room

TUESDAY, FEBRUARY 19, 9 A. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS

ROY B. HARRISON, M.D., Presiding

Should the Practice of Radiology, Pathology and the Administration of Anesthetics Be Limited to Those Who Are Licensed to Practice Medicine?

Legal Aspects
William C. Woodward, M.D., Director, Bureau of Legal Medicine and Legislation, American Medical Association, Chicago.
Administrative Aspects
A. T. McCormack, M.D., Secretary, Kentucky State Board of Health, Louisville.
The Radiologist
B. R. Kirklin, M.D., Mayo Clinic, Rochester, Minn.
The Pathologist
J. P. Simonds, M.D., Professor of Pathology, Northwestern University Medical School, Chicago.
The Anesthetist
F. H. McMechan, M.D., Secretary General, International Anesthesia Research Society, Rocky River, Ohio.
The Surgeon
Karl A. Meyer, M.D., Medical Superintendent, Cook County Hospital, Chicago.
The Internist
James S. McLester, M.D., President-Elect, American Medical Association, Birmingham, Ala.
The Hospital Administrator
A. C. Bachmeyer, M.D., Director of Clinics, University of Chicago.
The Licensing Board
Walter L. Bierring, M.D., President, American Medical Association, Des Moines, Iowa.
Discussion: Albert Soiland, M.D., Los Angeles; J. J. Moore, M.D., Chicago, and William R. Davidson, M.D., Evansville, Ind.

Red Lacquer Room

TUESDAY, FEBRUARY 19, 2 P. M.

J. H. MUSSER, M.D., Presiding

Osteopathy and Licensure
Frederick Etherington, M.D., Dean, Queen's University Faculty of Medicine, Kingston, Ont.
Discussion: William D. Cutter, M.D., Chicago.
Extension Teaching in Medicine
Charles Gordon Heyd, M.D., Professor of Clinical Surgery, New York Post-Graduate Medical School, New York.
Discussion: George B. Zehmer, M.A., University, Va.
Daniel J. Glomset, M.D., Des Moines, Iowa.
Discussion: A. S. Berg, M.D., Boston.

Are Interns Practicing Medicine?
Harold Rypins, M.D., Secretary, New York Board of Medical Examiners, Albany.
Discussion: J. W. Bowers, M.D., Fort Wayne, Ind.
Uniform Standards in Licensure
Charles B. Pinkham, M.D., Secretary, California Board of Medical Examiners, Sacramento.
Discussion: Arthur W. Booth, M.D., Elmira, N. Y.

EXECUTIVE SESSION: FEDERATION OF STATE MEDICAL BOARDS.
Red Lacquer Room

Federation Dinner

The annual dinner of the Federation of State Medical Boards of the United States will be held Monday at 6:30, at the Palmer House. All attending the congress are invited.

PROGRAM

Address by Henry E. Sigerist, M.D., Director, Institute of the History of Medicine, Johns Hopkins University, Baltimore.
Presidential address of Henry M. Fitzhugh, M.D., Secretary, Maryland Board of Medical Examiners, Baltimore.
Round table conference.

Reduced Railway Fares

Reduced railway fares will be in effect for those who attend the congress. In some cases excursion rates are offered. In most instances, however, the reduced rate will be upon the certificate plan. This certificate must be obtained at the point of departure at the time of purchase of the railroad ticket to Chicago and must be countersigned by a representative of the railroad at the congress in order to entitle the holder to a reduced fare on the return trip.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Dr. Major Gives Scripps Lectures.—Dr. Ralph H. Major, professor of medicine, University of Kansas School of Medicine, delivered the annual Scripps Metabolic Lectures, January 10-12, La Jolla. The subject was "Bedside Clinics."

Personal.—Dr. Alexander M. Lesem, director of public health of the city and county, has been chosen president of the newly organized San Diego Public Health Association.——Dr. John M. Wakefield, Sutter Creek, has been appointed health officer of Amador County, succeeding the late Dr. George L. Lynch.——Dr. Carlton C. Purviance has been named health officer of Fairfield, succeeding the late Dr. Henry V. Clymer.

Bills Introduced.—S. 21 proposes to regulate the production and distribution of serums, vaccines, bacterial cultures and viruses and to require the licensing by the department of public health of persons manufacturing, preparing and distributing such products. A. 8, to amend the workmen's compensation act, proposes to extend the benefits of the act to all persons performing services for any public body in return for aid or relief. A. 73 proposes to transfer to and vest in the state board of pharmacy all powers, duties and functions vested in the chief of the division of narcotic enforcement.

Popular Medical Lectures.—James M. D. Olmsted, Ph.D., gave the first of the annual series of popular medical lectures sponsored by Stanford University School of Medicine, San Francisco, in Lane Hall, January 4; his subject was "Brain Activities." Dr. Harold K. Faber gave the second in the series, January 18, on "Poliomyelitis." Other lectures will be:
Dr. Maurice L. Tainter, February 1, Dinitrophenol in the Control of Obesity.
Nathan Van Patten, director of university libraries, February 15, Quinine: The First Hundred Years.
Dr. William P. Shepard, March 1, Present-Day Relationships Between Medicine and Industry.
Dr. Mary H. Layman, March 15, Growth and Development in Infancy.

Course in Ophthalmology and Otolaryngology.—The fourth annual midwinter clinical course in ophthalmology and otolaryngology given by the Research Study Club of Los Angeles opened January 21 and will continue until February 2. At a dinner meeting, January 28, of the Los Angeles County Medical Association and the Research Study Club, the speakers will be Prof. Georges Portmann, professor of otorhinolaryngology, University of Bordeaux Faculty of Medicine, France; Drs. John F. Barnhill, professor of surgery of the head, Indiana University School of Medicine, Indianapolis; Harry S. Gradle, professor (extramural) of ophthalmology, Northwestern University Medical School, Chicago, and Webb W. Weeks, professor of ophthalmology, New York University, University and Bellevue Hospital Medical College.

CONNECTICUT

Dr. Winternitz Resigns as Dean—Dr. Bayne-Jones Appointed.—Dr. Milton C. Winternitz, whose term of office as dean of the Yale School of Medicine expires in June, has declined to be considered for reappointment, it was announced, January 15. Dr. Stanhope Bayne-Jones, professor of bacteriology at the school since 1932, has been named to succeed Dr. Winternitz for a period of five years beginning July 1. Dr. Winternitz has been teaching at Yale since 1917, first as professor of pathology and bacteriology and later as Anthony N. Brady professor of pathology, and has been dean since 1920. He will continue as professor of pathology. Dr. Bayne-Jones received his medical degree from Johns Hopkins University School of Medicine in 1914, having previously graduated from Yale. During the World War he served as medical officer with the British Expeditionary Forces for ten months, later was with the Twenty-Sixth Division of the American Expeditionary Forces, and finally with the rank of major was sanitary inspector of the Army of Occupation, receiving the British military cross and the croix de guerre. From 1919 to 1923 he was associate professor of bacteriology at Johns Hopkins and for the next eight years was professor of bacteriology at the University of Rochester (N. Y.). While in Rochester he was also director of the Rochester Health Bureau Laboratories. On leave from Yale in 1932 and 1933, he was chairman for one year of the Medical Science Division of the National Research Council in Washington. Since 1931 he has been a member of the Council on Pharmacy and Chemistry of the American Medical Association. He is a former president of the Society of American Bacteriologists and of the American Association of Immunologists. Recently he was elected vice president for Section N of the American Association for the Advancement of Science. He is the author of many publications in his field. At Yale he is master of Trumbull College, one of the seven student houses.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—S. 368, introduced by Senator Capper, Kansas, and Senator Copeland, New York, and H. R. 4135, introduced by Representative Norton, New Jersey, propose to amend the Code of Laws for the District of Columbia to provide relief, aid, care and support for the aged.

Society News.—Dr. Arthur H. Ruggles, Providence, R. I., among others, addressed the annual dinner meeting of the Washington Institute of Mental Hygiene, Dec. 7, 1934, on "Mental Hygiene and Education."——Dr. William Charles White was reelected president of the District Tuberculosis Association, Dec. 21, 1934.

ILLINOIS

Society News.—Dr. John D. Camp, Rochester, Minn., addressed the Peoria City Medical Society, January 22, on "Significant Roentgenologic Changes in the Spine," and January 15 the speaker was Dr. George E. Shambaugh Jr., Chicago, on "What Can Be Done for Sinus Disease?" Dr. George W. Parker was recently elected president of the society.——The La Salle County Medical Society was addressed at La Salle, January 10, by Drs. Italo F. Volini, Chicago, on "Etiologic Diagnosis of Heart Disease," and Robert A. Black, Chicago, "The Rheumatic Heart in Children."——Dr. Theodore N. Rafferty, Robinson, addressed the Crawford County Medical Society in Robinson, January 10, on "Intra-Abdominal Hemorrhage of Ovarian Origin."

Four Year Study of Accidents.—In a recent report of accidents in Illinois for the four years 1930-1933 released by the state department of health, it was stated that accidents account for one in every seven deaths in some counties, while in others only one in twenty-five fatalities is attributed to accidents. For this period, accidents were responsible for 23,905 deaths in Illinois, and of these 8,938 were charged to motor vehicle mishaps. For all accidents the highest rates prevailed in Alexander, Union, Christian, Morgan and Lake counties, in the order named, where the number of deaths ranged from 140 to 120 per hundred thousand of population. The most favorable rates prevailed in Menard, Pratt, Jasper, Wayne and Moultrie counties, where the annual losses averaged from 36 to 40 per hundred thousand of population. For motor vehicles alone Lake County had the worst record by a wide margin, 60 deaths per

hundred thousand annually from automobile mishaps. Next in order were Edgar, with a rate of 49; DeKalb, 43; Will, 42; McLean, 41; Grundy, 40, and Kankakee, 40. Calhoun County was the only one in which no death was attributed to motor vehicles. The state at large had an average loss of 77 per hundred thousand from all accidents for the four years.

Chicago

Dr. Greenough Gives McArthur Lecture.—Dr. Robert B. Greenough, Boston, will deliver the eleventh Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine, February 22. His subject will be "Cancer Education in Medical Schools."

Hospital News.—Cook County Hospital cared for 70,427 patients during the fiscal year ended December 1, an increase of 153 over the number hospitalized in 1933. The daily average is 2,680 patients for 1934 as compared with 2,652 during 1933, according to the Chicago *Tribune*.——Prof. Ulrich Friedemann of the staff of the British National Research Council lectured at the Albert Merritt Billings Memorial Hospital on "Experimental Investigation on the Blood-Brain Barrier in Infectious Diseases."

Society News.—Dr. Ludwig Fraenkel, professor and head of the department of gynecology and obstetrics, University of Breslau, Germany, gave an illustrated lecture before the Institute of Medicine of Chicago and the Chicago Gynecological Society, January 15; his subject was "Etiology, Diagnosis and Treatment of Parametritis."——Speakers before the Chicago Society of Internal Medicine, January 28, will be Dr. William S. Hoffman on "Relation of Serum Inorganic Sulphate to Renal Efficiency"; Dr. Franklin C. McLean and Albert Baird Hastings, Ph.D., "Clinical Observation of the Calcium Ion Concentration in the Blood," and Dr. Géza de Takáts, "Observations on Buerger's Disease."

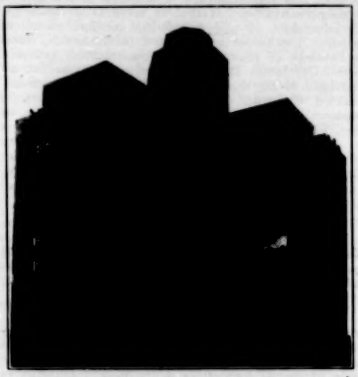
KANSAS

Bills Introduced.—H. 55 and H. 56 propose to authorize the licensing of dental hygienists by the board of dental examiners. Such licentiates are to be permitted to remove calcic deposits, accretions and stains from the surfaces of the teeth but are not to perform any other operation on the teeth or tissues of the mouth. A dental hygienist is to be permitted to operate only under the general direction or supervision of a licensed dentist, in his office or in any public school or other institution. S. 63 proposes (1) to require each party to a proposed marriage, as a condition precedent to obtaining a license to marry, to present a certificate from a licensed physician that he or she is free from mental and venereal disease, (2) to limit to $3 a physician's fee for examining each party, and (3) to provide that no license shall issue when either party is epileptic, feebleminded, idiotic, insane, or has any venereal disease.

MARYLAND

Society News.—A joint meeting of the Baltimore City Medical Society and the Mid-Atlantic Urological Society, January 18, was addressed by Drs. Howard A. Kelly, Baltimore, on "Radium Treatment of Bladder Tumors: Benign and Malignant"; Ray M. Bobbitt, Huntington, W. Va., on "Experiences in Prostatic Resection in Carcinoma of the Prostate"; Harry A. Fowler, Washington, D. C., "Pseudomembranous Trigonitis. What Is It? What Can We Do for It?"; Benjamin S. Abeshouse, Baltimore, "Gastro-Intestinal Symptoms in Diseases of the Upper Urinary Tract; the So-Called Retroperitoneal Syndrome," and Horatio N. Dorman, Washington, D. C., "Necrosis of the Testicle Following Bladder Neck Surgery."——At a meeting of the Osler Historical Society, Baltimore, January 15, Dr. Jesse W. Downey Jr., Baltimore, presented "Brief Notes on the Ear in Medical History, with an Exhibition of Some of the Earliest Textbooks on Otology," and Dr. David I. Macht, "A Pharmacological Appreciation of Shakespeare's Romeo and Juliet."——Dr. Victor F. Cullen, State Sanatorium, discussed "Late Developments in Tuberculosis" before the Allegany-Garrett Counties Medical Society in Cumberland, Dec. 14, 1934.——The Baltimore County Medical Association was addressed, Nov. 21, 1934, by Dr. Perrin H. Long on the common cold.——Dr. Alan C. Woods, Baltimore, addressed the Frederick County Medical Society, Nov. 20, 1934, on "Ocular Tuberculosis, Its Diagnosis and Treatment."

University Hospital Dedicated.—The dedication of the University Hospital of the University of Maryland, Baltimore, took place, Dec. 15, 1934. Dr. Irving S. Cutter, dean, Northwestern University School of Medicine, Chicago, gave the dedicatory address. Other speakers included Albert C. Ritchie, then governor of Maryland, and Dr. Alan M. Chesney, dean of Johns Hopkins University School of Medicine. Located at Redwood and Greene streets, the building is ten stories high, with the center portion carried up into a tower to provide five extra floors. The exterior of the structure is plain brick. Purchased steam heats the building, doing away with the necessity of a boiler plant. The building is in the shape of a cross with wings radiating in four directions from a common center, providing a means of communication up through the center, without transgressing any department and yet readily accessible to all departments. It also provides for a separation between the teaching wards and pay wards and still gives each department its own floor or portion to itself. An unusual feature is that practically all the specialized treatment service has been concentrated on one floor, the second. The arrangement of the space from the second floor to the eighth has been designed for teaching, while the ninth and tenth floors have been set aside for private and semiprivate pay patients. One section of the floors for obstetric and pediatric patients has been reserved for those who require special services. Of the 394 beds in the new hospital seventy-one are for private patients,



The new University Hospital

sixty-five for semi-private and 258 for ward patients. About $1,500,000 was allocated in 1932 by the general assembly to erect the building. The old University Hospital was built in 1896, although the institution itself was established in 1823. This structure, which provides 250 beds, forty-five of which are devoted to Negro patients, will be remodeled and used for a general outpatient department.

MASSACHUSETTS

Bills Introduced.—H. 713, to amend the workmen's compensation act, proposes to limit the medical and surgical aid to an injured employee for which the employer is liable to a period of two weeks immediately following the injury. Under the present law the employer must render such aid for the first two weeks after the injury, but, if the employee is not immediately incapacitated thereby from earning full wages, the time of such liability on the part of the employer dates from the beginning of the incapacity. H. 755 proposes to provide (1) that no person shall be required to submit to any form of vaccination or inoculation unless the physician supplies a written guaranty of the purity of the virus to be used, and (2) that any physician vaccinating a child, without the consent of the parents or guardians, or an adult without his consent, shall be personally liable for all injuries resulting therefrom. H. 768 proposes to provide for the establishing under the state department of health of a system of clinics to which persons arrested for intoxication may be committed for treatment.

MICHIGAN

Bill Introduced.—S. 45, to amend the workmen's compensation act, proposes to make compensable any incapacity or disability arising out of and in the course of any employment covered by the act. This would bring under the coverage of the act all manner of disease and injuries, whether accidental or otherwise.

Dr. Barker to Give Beaumont Lectures.—Dr. Lewellys F. Barker, professor emeritus of medicine, Johns Hopkins University School of Medicine, Baltimore, will deliver the Beaumont Lectures of the Wayne County Medical Society, Detroit, February 4-5, on "Heredity and Environment in Relation to the Handicapped." The subtitle of his first lecture will be "The Origin and Nature of Human Handicaps" and the second, "The Amelioration of the Condition of the Handicapped and the Possibilities of Reduction of Their Numbers by Modification of Heredity and Environment." Dr. Barker will address the students of Wayne University Medical School the morning of February 5, on "Major and Minor Medical Morals."

Dr. Furstenberg Appointed Dean.—Dr. Albert C. Furstenberg, professor of otolaryngology, University of Michigan Medical School, Ann Arbor, has been appointed dean to succeed Dr. Frederick G. Novy, who recently resigned. Dr. Furstenberg graduated from the University of Michigan in 1915. Since his internship he has been a member of the faculty of his alma mater in various capacities until his appointment in 1932 as professor and head of the department of otolaryngology. It was simultaneously announced that a division of health sciences had been created to serve as an advisory unit to the university. It will include the medical school, school of dentistry, division of hygiene and public health, school of nursing, college of pharmacy and department of postgraduate medicine. Dr. James D. Bruce, vice president of the university and head of the department of postgraduate medicine, has been named chairman of the newly created division. Both appointments are effective with the beginning of the second semester, February 9. The appointment of an executive committee was also announced: Dr. Furstenberg, chairman; Dr. Harley A. Haynes, director of the university hospital; Dr. Bruce; Dr. Frederick A. Coller, director of the department of surgery; Dr. Carl V. Weller, professor of pathology, and Dr. Udo J. Wile, professor of dermatology.

MINNESOTA

Bill Introduced.—H. 7 proposes to make it unlawful for any person to raise marijuana or prepare or manufacture marijuana into any product usable for smoking purposes.

NEW YORK

Coordination of Medical Society Activities.—The council of the Medical Society of the State of New York, at a meeting Dec. 13, 1934, adopted resolutions authorizing the formation of special committees in the district branches of the society to study the objectives of various organized groups that exist within organized medicine. These committees are to endeavor to coordinate the efforts of members of the organized profession along parallel lines within the framework of the ten-point program of the American Medical Association. If and when any common ground is found and a conclusion reached, the committee is to report to the public relations committee of the state society, which may hold further hearings at its discretion and report to the council, the executive committee or to the house of delegates. If reports of the district committees are not in accord, the public relations committee is to confer with the committees with a view to finding common ground between them.

Bills Introduced.—S. 123, A. 150 and A. 210 propose apparently to do away with the right which both the employee and the insurance carrier now have of selecting physicians at their own expense to participate in such physical examinations of the employee as may be required by the industrial board or by the industrial commissioner. A. 185, to amend the medical practice act, proposes to make it unlawful for any one other than a licensed physician to conduct, direct, supervise or control the work or reports of a clinical laboratory, which is defined as a "laboratory in which tests are made on individual persons, their secretions, excretions, blood and tissues to aid in the diagnosis, prognosis or treatment of the individual's physical or mental state or states." The provisions of this bill, however, are not to apply to qualitative or quantitative analysis of urine by a licensed pharmacist nor to a clinical laboratory director duly licensed to conduct, direct or supervise a clinical laboratory within the city of New York, nor to any person who has conducted, directed or supervised a clinical laboratory in the state for a period at least six months prior to the date this bill may become enacted. A. 195 proposes to amend that provision in the vital statistics law which requires that the personal particulars called for in a certificate of birth shall be authenticated by the signature of an informant, who may be any competent person acquainted with the facts, by providing that such personal particulars shall be obtained from a competent person acquainted with the facts. S. 208 proposes to accord to physicians, nurses and hospitals, treating persons injured through the negligence of another, liens on all judgments, settlements or compromises accruing to such injured persons by reason of their injuries.

New York City

Society News.—Dr. Charles H. Hochman addressed the Bronx Pathological Society, January 15, on "Traumatic Rupture of the Brain Stem as a Cause of Sudden Death."——Drs. Eli H. Rubin and Theodore J. Curphey addressed the Bronx County Medical Society, January 16, on "Modern Treatment of Pulmonary Tuberculosis" and "Recent Advances in Diagnosis and Treatment of Pneumonia," respectively.

Lectures in Bronx County.—The winter session of lectures sponsored by the Bronx County Medical Society at Bronx hospitals has been announced as follows:

January 21, Dr. Solomon Bilous, Diabetes in the Young.
February 4, Dr. Milton J. Goodfriend, Uterine Bleeding in the Last Trimester.
February 11, Dr. Joseph Golomb, Practical Points in Handling Children.
February 18, Dr. Henry Roth, Minor Surgery.

Special Study of Osteomyelitis.—The Hospital for Joint Diseases announces that it is making a special study of the maggot treatment of osteomyelitis, for which patients living in or near New York may be referred for observation and treatment. Physicians who wish to refer bed patients are asked to telephone the hospital for reservations; ambulatory patients should be sent to the outpatient department Monday, Wednesday and Friday mornings.

Hospital Closes for Lack of Funds.—St. Mary's Hospital for Children, established in 1870, closed its doors Dec. 31, 1934, because of insufficient income. Plans are now in the making to reopen the institution in the spring as a convalescent hospital for children. The hospital formerly operated two convalescent homes at Norwalk, Conn., and Peekskill, N. Y., but both have recently been closed for lack of funds. Last year 65.8 per cent of the ward services and 79.2 per cent of the outpatient department services were rendered free. This is the second hospital in New York to close within a month, the first having been the New York Nursery and Child's Hospital, founded in 1823.

Diabetes Association Formed.—The New York Diabetes Association has recently been formed in affiliation with the New York Tuberculosis and Health Association to carry on a campaign against the disease, to be financed by a special contribution of $15,000 made by Lucius N. Littauer. The new organization will act as a clearing house for the study of diabetes as a health problem, devise measures for its control, assist in the formation of an association of clinics dealing with diabetes, develop graduate instruction for physicians, carry on health education of the general public in matters relating to diabetes, and obtain the provision of insulin for indigent sufferers and nursing service and hospitalization for all who require it. In its council will be included representatives of the tuberculosis and health associations, New York Academy of Medicine, city departments of health and hospitals, the five county medical societies, the schools of medicine, public and private hospital authorities, social and welfare agencies and interested laymen. Mr. Littauer, a manufacturer, has previously contributed large amounts for support of public health activities, notably gifts of $50,000 to Albany Medical College and $10,000 to New York University for studies on pneumonia.

NORTH CAROLINA

Society News.—Dr. Carl V. Reynolds, Asheville, acting state health officer, was guest of honor at a dinner given by the Buncombe County Medical Society at Asheville, Dec. 22, 1934. Dr. Julian A. Moore was toastmaster and talks were made by Drs. Paul P. McCain, Sanatorium, president; Paul H. Ringer, Asheville, president-elect, and Louis B. McBrayer, Southern Pines, secretary of the Medical Society of North Carolina. Other speakers included Drs. Charles H. Cocke, Gibbons W. Murphy, Clyde E. Cotton, Joseph B. Greene, Gaillard S. Tennent and Dr. Reynolds, all of Asheville. About forty physicians attended.

OKLAHOMA

Bill Introduced.—S. 14 proposes to authorize the sexual sterilization of habitual criminals and define as an habitual criminal any person convicted to final judgment three times for the commission of felonies.

PENNSYLVANIA

State's Hospitals Gave Sixty Per Cent Free Care in 1933.—In 124 Pennsylvania hospitals, 60 per cent of the 5,468,048 days of care given to patients in 1933 was free, according to a study recently made public by the Hospital Association of Pennsylvania. The bed capacity of the hospitals was 25,747 and the average cost per day of the 3,284,096 free days was $3.75. The association estimated that if the same ratio of free to paid service existed in the remaining 297 hospitals and sanatoriums in the state, excluding public hospitals, the total cost of free care would have been about $28,000,000. Outpatient or dispensary service maintained by 202 hospitals cost an additional $3,187,464. These estimates do not include overhead charges or any evaluation of physicians' services.

Philadelphia

Medical College News.—Mr. Alba B. Johnson, president of the board of trustees of Jefferson Medical College and Hospital, died January 8 of heart disease, aged 77. Mr. Johnson was a former president of the Baldwin Locomotive Works and was active in civic, social and cultural organizations.——William K. Gregory, Ph.D., professor of vertebrate paleontology, Columbia University, delivered the annual Alpha Omega Alpha Lecture at Jefferson, January 18, on "The Origin, Rise and Decline of Homo Sapiens."

Annual Meeting on Economics.—The Philadelphia County Medical Society held its annual meeting on medical economics, January 23. Speakers were Drs. Francis F. Borzell, chairman of the committee on medical economics of the Medical Society of the State of Pennsylvania, whose subject was "Organized Medicine and Social Insurance"; Nathan B. Van Etten, New York, vice speaker of the House of Delegates of the American Medical Association, "The Medical Economics Program for 1935," and Arthur C. Christie, Washington, D. C., "Some Problems of Medical Care: Is Health Insurance the Solution?"

TENNESSEE

Bills Introduced.—S. 83 proposes to create a council of public health, which "shall approve all the rules and regulations formulated by the department of public health," said council to consist of three licensed physicians, one licensed dentist, one sanitary engineer, one member of the Tennessee Congress of Parents and Teachers, one member of the Tennessee Federation of Women's Clubs, one educator, and one member of the American Legion Auxiliary, Department of Tennessee. S. 85 proposes to repeal the laws regulating the registration of nurses and to enact a new nursing practice act. Applicants for licenses must be high school graduates and be graduates of accredited schools of nursing, giving courses of not less than two years. A person not registered may practice nursing but not as a registered, trained, certified or graduate nurse and may not use the title, letters or anything else to indicate that he or she is a registered nurse. H. 130 proposes to authorize the sexual sterilization of certain socially inadequate inmates of the Hospital for the Criminal Insane, of the Central State Hospital, of the Eastern State Hospital, of the Western State Hospital, of the Tennessee Home for Feebleminded Persons, and of the state penitentiary.

TEXAS

Bill Introduced.—H. 10 proposes to limit the hours of employees engaged in selling, at retail, drugs and medicines, and compounding physicians' prescriptions, to not more than an average of nine hours a day or 108 hours in any two consecutive weeks.

Medical Assembly in San Antonio.—The third International Post-Graduate Medical Assembly of Southwest Texas will be presented in San Antonio, January 29-31. Among guest speakers will be:

Dr. Walter C. Alvarez, Rochester, Minn., Diagnosis of Gastro-Intestinal Disease from a Good History.
Dr. Joseph Brennemann, Chicago, Present Status of Specific Prophylaxis and Serum Therapy in the Infectious Diseases of Childhood.
Dr. Edward W. Alton Ochsner, New Orleans, Treatment of Varicose Veins.
Dr. Clifton M. Miller, Richmond, Va., Errors of Refraction and the Importance of Correcting Them.

Several physicians from Mexico will also appear on the program. There will be general sessions each day and evening, with sectional meetings at noon luncheons.

Society News.—Drs. Robert K. Lowry, Seymour, and William P. Farrington, Mundy, addressed the Baylor-Knox-Haskell Counties Medical Society, Knox City, Nov. 13, 1934, on Vincent's angina and typhoid fever, respectively.——Drs. Charles W. Flynn and Ozro T. Woods, Dallas, addressed the Henderson County Medical Society, Trinidad, Nov. 5, 1934, on diseases of the gallbladder and tumor of the breast, respectively.——Speakers at a meeting of the Tom Green-Eight Counties Medical Society in San Angelo, Nov. 5, 1934, were three San Angelo physicians: Drs. Floyd T. McIntire, on "Etiology and Treatment of Arthritis"; Rufus L. Powers, "Episiotomy and Low Forceps in Primipara" and William E. Schulkey, "Infections of the Hand."——Drs. James Howard Shane and Charles H. Warren addressed the Dallas County Medical Society, January 24, on "Important Factors in the Management of Urinary Infections" and "Nonspecific Granulomas of the Gastro-Intestinal Tract," respectively.

VIRGINIA

Society News.—Drs. Ernest Scott Elliott, Independence, Walter A. Porter, Hillsville, and Joseph Coates presented papers on pneumonia at a meeting of the Carroll-Grayson Counties Medical Society at Galax, Dec. 10, 1934.——Drs. Marcellus A. Johnson Jr. and Julius D. Willis addressed the Roanoke Academy of Medicine, Dec. 3, 1934, on "A New Method for Treating Fractures of the Leg" and "Pericardial Accumulations," respectively.——Drs. Meade C. Edmunds, Petersburg, and William G. Crutchfield, Richmond, among others, addressed the Southside Virginia Medical Association, Dec. 11, 1934, on "Pulmonary Abscess Following Tonsillectomy" and "Acute Head Injuries," respectively.——Drs. Griffin W. Holland, Eastville, and William W. Kerns, Bloxom, presented papers on dislocations of the shoulder joint and pneumonia, respectively, at a meeting of the Eastern Shore of Virginia Physicians' Journal Club, Dec. 11, 1934, at Nassawadox.

WEST VIRGINIA

Society News.—The Marshall County Medical Society at its meeting, Dec. 11, 1934, adopted a resolution protesting against "misleading advertising of nostrums" over the radio and through other channels.

Health Officers' Meeting.—The West Virginia Public Health Association and the State Health Officers' Conference met in joint session at Charleston, recently. Among speakers listed on the program were:

Dr. William H. Park, New York, New Ways for Old in Diphtheria.
Dr. Eugene L. Bishop, Nashville, Tenn., Public Health—What It Is and How It is Administered.
Dr. Oliver C. Wenger of the U. S. Public Health Service, Hot Springs National Park, Ark., Modern Control and Treatment of Syphilis from a Public Health Standpoint.
Dr. Harry E. Kleinschmidt, New York, What We Can Do to Control Tuberculosis.
Dr. Eric M. Matsner, New York, Some Neglected Phases of Maternal Health.

Dr. Turner E. Cato, New Cumberland, was elected president and Dr. John Thames, Charleston, secretary.

Conference of County Secretaries.—The annual conference of the secretaries of county medical societies was held at the headquarters of the West Virginia State Medical Association, Charleston, January 3, with Dr. Joseph A. Striebich, Moundsville, as chairman. A discussion of emergency medical service under the FERA was led by Dr. Grattan G. Irwin, Charleston, and one on nursing service by Dr. Robert C. Hood, Clarksburg. Dr. James R. Bloss, editor of the *West Virginia Medical Journal*, spoke on "The County Secretary and the State Journal"; Dr. Eugene S. Brown, Summersville, on "Functions of the Average County Medical Society," and Mr. Joe W. Savage, executive secretary of the state association, on pending legislation. Dr. Rome H. Walker, Charleston, president of the state association, welcomed the secretaries.

GENERAL

Infantile Paralysis Research Fund.—Hundreds of entertainments will be held throughout the United States on President Roosevelt's fifty-third birthday, January 30, for the benefit of the President's Birthday Ball Commission for Infantile Paralysis Research. The President will address the guests in a nationwide broadcast late in the evening. This year 70 per cent of the funds will be distributed among local communities to further their infantile paralysis work and 30 per cent to the national fund for research. The fund will be augmented by contributions of 25 cents from each person who signs a multiple signature birthday greeting to the President, and the signatures will be bound in book form in New York.

Bequests and Donations in 1934.—Gifts for philanthropic purposes increased during 1934, according to a survey made by a firm of fund raising consultants in six large cities, but bequests declined. Health ranked fourth in the eight classifications for which the study was made. In 1934 gifts for promotion of

health amounted to $3,875,406, in comparison with $1,178,600 in 1933. Bequests, however, declined from $16,349,835 in 1933 to $7,904,709 in 1934. The total amounts contributed for charitable objects in New York, Chicago, Philadelphia, Baltimore, Washington and Boston for the two years were $142,533,548 for 1933 and $112,602,266 in 1934. The decline in bequests in the six cities was from $99,840,290 to $58,579,670. Organized relief received the largest support, $27,544,857, about $5,000,000 less than in 1934. Increased support for education was evident in 1934, gifts having increased to $13,325,301 from $4,056,828 in 1933.

Changes in Status of Licensure.—The State Board of Medical Examiners of Florida reports the following action taken at its meeting in Tampa, Nov. 12, 1934.

Dr. Joseph M. De Gaetani, whose last known address was Miami, license revoked on two charges: that his license and diploma were fraudulently obtained through the old eclectic board and that he recently committed a criminal abortion. He was tried in the criminal court of Dade County on the latter charge but was pronounced not guilty.

Dr. Harper L. Proctor, Jacksonville, license revoked; now serving a prison sentence for having violated the Harrison Narcotic Act.

Dr. Edward K. Tollidge, license revoked, June, 1931, on the ground that he had falsified in making application to the board, having asserted that he had never been convicted of a crime involving moral turpitude; it was later discovered that he had served a term in a federal prison. The supreme court reversed the action of the board on the ground that Tollidge was improperly notified when his trial took place. The license was revoked again at this meeting on the same charge.

The Board of Medical Examiners of the State of Oklahoma reports the following:

Dr. John Milton Thompson, Walters, license suspension changed from five years' suspension to one year's suspension and four years' probation. He may thus begin practice March 13, 1935.

Physicians Requested to Help Find Dr. Bigelow.—Massachusetts authorities ask physicians throughout the country to watch for Dr. George H. Bigelow, director of the Massachusetts General Hospital and former state health commissioner, who has been missing since Dec. 3, 1934, and may be suffering from amnesia. Dr. Bigelow is 6 feet tall, weighs about 175 pounds, and has deep blue eyes and a heavy shock of black hair, closely cut and slightly gray at the temples. He is of rangy build. When he left home, he wore a soft brown felt hat, a black overcoat with a velvet collar, a brown suit, tan rubber-soled shoes, and a white shirt. He wore a square silver wrist watch with a leather strap and carried a brown pigskin brief case. He is 44 years of age. He disappeared, December 3, having left his home in Milton for his office in the Moseley Building at the Massachusetts General Hospital, Boston. He was to appear at 8 o'clock Tuesday evening, December 4, at the Staten Island Hospital to speak, and on Wednesday at the American Society for the Control of Cancer in New York City. The Massachusetts Department of Public Safety has the fingerprints of Dr. Bigelow. Hospitals are requested to take the fingerprint of all unidentified amnesia victims and forward the prints to the commissioner of public safety, Col. Paul G. Kirk, State House, Boston.

Dr. George H. Bigelow.

Medical Bills in Congress.—*Change in Status:* H. R. 3410, the Independent Offices Appropriation Bill, has passed the House and Senate. A Senate amendment which is subject to acceptance or rejection by the House authorizes payments, not to exceed $500,000, to state institutions caring for and maintaining veterans suffering from neuropsychiatric ailments, who are in such institutions on the date of the enactment of the act. *Bills Introduced:* S. 1130, introduced by Senator Wagner, New York, H. R. 4120, introduced by Representative Doughton, North Carolina, and H. R. 4142, introduced by Representative Lewis, Maryland, propose to alleviate the hazards of old age, unemployment, illness and dependence; to establish a social insurance board in the Department of Labor, to raise revenue, and other matters. These bills propose to create a social insurance board in the Department of Labor, which is to be authorized, among other things, to study and make recommendations as to legislation providing for health insurance. They provide federal subsidies, contingent on state plans being acceptable to the chief of the Children's Bureau, to promote maternal and infant welfare, to care for crippled children and to provide for child welfare services. Federal subsidies are further provided for the development of state and local health work. S. Res. 55, introduced by Senator Sheppard, Texas, proposes to create a Senate Committee on World War Veterans' Legislation. S. 1132, introduced by Senator Moore, New Jersey, proposes to authorize the Secretary of the Treasury to insure loans made by banks and other financial institutions, for the purpose of financing payment for medical and dental services. H. R. 19, introduced by Representative Fulmer, South Carolina, proposes to prohibit the sending of unsolicited merchandise through the mails. H. R. 99, introduced by Representative Smith, Washington, and H. R. 2071, introduced by Representative Taylor, Tennessee, propose to reenact all laws granting compensation, medical, hospital or domiciliary treatment to veterans that were repealed by the act of March 20, 1933. H. R. 100, introduced by Representative Smith, Washington, proposes to reenact laws relating to pensions for Spanish-American War veterans that were repealed by the act of March 20, 1933. H. R. 150, introduced by Representative Cochran, Missouri, proposes to authorize the Reconstruction Finance Corporation to make loans to any public or private hospital organized under the laws of any state. H. R. 156, introduced by Delegate Dimond, Alaska, proposes to extend the facilities of the Public Health Service to seamen on government vessels not in the military or naval establishments. H. R. 1404, introduced by Representative Lundeen, Minnesota, proposes to grant pensions and increases of pensions to certain soldiers and sailors of the war with Spain, the Philippine insurrection and the China relief expedition, and their widows and dependents. No pension is proposed by the bill for contract surgeons of the Spanish-American War. H. R. 2760, introduced by Representative Dingell, Michigan, proposes to authorize the Reconstruction Finance Corporation to make loans to nonprofit benevolent charitable corporations operating homes, hospitals or orphanages for sick and infirm persons, indigent persons of old age, mental defectives or orphans. H. R. 2802, introduced by Representative Johnson, Oklahoma, proposes to protect labor by providing for old age and disability pensions. H. R. 2813, introduced by Representative Kvale, Minnesota, proposes to extend the privileges of compensation and hospitalization to certain American citizens who volunteered in the French military forces without surrendering their American citizenship. H. R. 2828, introduced by Representative Lundeen, Minnesota, proposes, among other things, to reenact all laws granting medical or hospital treatment, domiciliary care, compensation and other allowances to veterans and the dependents of veterans of the Spanish-American War, including the Boxer rebellion and the Philippine insurrection, which were repealed by the act of March 20, 1933. H. R. 3005, introduced by Representative Hoeppel, California, proposes to establish federal research fellowships to college graduates for the purpose of conducting research work for the benefit of the various departments of the federal government or for private industry in medicine, surgery, bacteriology, hygiene and other fields. H. R. 3423, introduced by Representative Tinkham, Massachusetts, proposes to direct the retirement of acting assistant surgeons of the United States Navy at the age of 64 years. H. R. 3635, introduced by Representative Mitchell, Tennessee, proposes to erect a veterans' hospital in middle Tennessee. H. R. 3972, introduced by Representative Mead, New York, proposes to prevent the manufacture, shipment and sale of adulterated or misbranded foods, drugs and cosmetics and to prevent the false advertisement thereof.

FOREIGN

Dysentery in Japan.—The New York *Times*, January 11, reported an epidemic of infantile dysentery in Kawaski, an industrial suburb between Tokyo and Yokohama. It was said that 850 cases had been reported since January 3, with 101 deaths.

Medical Center in Shanghai.—Construction has been started on a medical center in Shanghai, China, according to the New York *Times*. Buildings will be erected on a twenty-one acre tract donated by the Rockefeller Foundation to the board of directors of the Shanghai Medical Center. The head of this board, which is made up of twenty-seven Chinese government officials, business men and physicians, is Dr. H. H. Kung, minister of finance of China. The first structure will be a hospital with accommodations for about 550 patients, but the plans call for an ultimate capacity of 1,000. The hospital will be financed with funds solicited by the Shanghai Medical Center; $200,000 has already been subscribed. The Chinese government will finance the construction of a building on the same site for the National Medical College, plans for which have already been approved. This project will cost about $125,000.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 29, 1934.

The British Medical Association and the Attempt of the Osteopaths to Obtain Registration

The second reading in the house of lords of the bill for the registration and regulation of osteopaths was reported in a previous letter. A special committee of the council of the British Medical Association is preparing a memorandum on osteopathy, and the medical secretary has prepared the following preliminary criticism: If the bill becomes law, two different classes of practitioners recognized under different acts will be set up. The purpose of the medical acts now in existence was to draw a clear line between persons who have and persons who have not passed through the authorized medical curriculum. This will be defeated. The student of osteopathy, after a course of instruction of considerably less duration than the medical student, will be admitted to the register of osteopaths and entitled to hold himself out to practice in the wide field of medicine. A new type of practitioner will appear and the public will have to distinguish for itself between those who have satisfied the full requirements of the General Medical Council, those who have satisfied the lesser and different requirements of the Board of Registration of Osteopaths, and those who have received no recognized training at all. Today any physician is free to practice any form of treatment which he regards as beneficial. Neither belief in osteopathy nor the practicing of it can exclude any one from the Medical Register. The General Medical Council, which controls practice, is expressly prohibited from making any distinction between practitioners following different theories or methods of treatment. Those who have a knowledge of the human body in health and disease sufficient to justfy them in engaging in medical practice can satisfy the requirements of the General Medical Council and then adopt what methods they like.

Of the "osteopathy" which the bill is to recognize, little information is given by those claiming registration. It is described as "a system of treatment by manipulation methods." Yet in clause 8 of the bill it is laid down that no one unless registered under this act shall practice osteopathy. The course of instruction is shorter than that demanded of the medical student. The effect of this would be to attract a new and inferior type of student. Yet on admission to the register he will hold himself out as qualified to practice practically the whole field of medicine. Such a register will prove a back door to medicine. Is this in the public interest? As the law stands, the public can seek its treatment where it likes, with the Medical Registrar to enable it to distinguish those who have satisfied minimum standards. Soon there will be demands from other cults, and registers will multiply. The bill precludes any one not registered as an osteopath from practicing osteopathy, which is described merely as a system of manipulative treatment. It follows that physicians are to be prevented from using manipulative treatment. No monopoly of any particular system of treatment should be created. According to the bill the proposed board of registration will consist of a chairman appointed by the privy council, two persons representative of science, not being physicians, appointed by the ministry of health, and eight osteopaths, five of whom are to be appointed by the British Osteopathic Association. How can a board thus created have an intimate acquaintance with medical science? Medical education must rest on a broad scientific foundation, so that the student may be both competent in practice and trained to judge the value, or want of value, of future developments. Such a training cannot be provided in institutions restricted to a particular theory.

Speaking at the annual dinner of the Medico-Legal Society, Lord Horder made some crucial objections to the proposed registration. It was difficult for him to conceive how it was possible to erect a single therapeutic measure into a system of medicine, to eliminate the art of diagnosis and the basis of all medicine, which was pathology, and proceed straight to treatment. He wondered what was going to happen to the British public if for diagnosis and the pathology that underlay diagnosis there was substituted one single treatment, however important, and if the man who had this one method of treatment at his command was to be elevated to the position of a registered medical practitioner. Still, if the public wanted it, let it be tried out. He did not think that physicians should protest too much against that sort of thing. The more they protested the more would osteopaths consider themselves martyrs, and martyrdom was valuable propaganda.

The Edinburgh Chair of Clinical Medicine

The important Edinburgh chair of clinical medicine has been rendered vacant by the retirement of Prof. Edwin Bramwell, who is widely known by his writings on myasthenia gravis, epilepsy and spinal tumors. He is the oldest son of the late Sir Byrom Bramwell, a great clinician who specialized in neurology at the end of the last century. Professor Bramwell is succeeded by Dr. Edwin Matthew, physician to the Royal Infirmary.

Statistics on the Public Health for 1933

The Registrar-General's Statistical Review for 1933, which has just been published, shows that the infant mortality was 64 per thousand live births. The rates for 1930, 1931 and 1932 were respectively 60, 66 and 65. Thus the rate for 1933 was only slightly in excess of that for 1930, which was the lowest on record. The death rate from tuberculosis was the lowest on record, being 824 per million of population, while the "comparative mortality" from cancer showed a slight decline. The death rate from puerperal sepsis was 1.75 per thousand births, which was 0.20 more than in 1932 but 0.09 less than in 1930. The death rate from suicide was 140 per million living, a decrease of 3 on the rate for 1932, which was the highest on record. These figures again show that no deterioration of the condition of the people has taken place, in spite of the unprecedented and persistent unemployment. Indeed, the general death rate from all causes, 12.3 per thousand, was only 0.9 above that for 1930, the lowest on record, which is attributed to the exceptionally mild weather of the first quarter of that year. It may be added that the 1933 birth rate, 14.4 per thousand population, was the lowest ever recorded.

Treatment of Asthma by Exercises

The Asthma Research Council, whose last report was reviewed in THE JOURNAL, December 29, has issued an illustrated booklet on the treatment of asthma by exercises. The object of treatment is to restore the lungs and chest to normal size or to prevent distention from occurring. Ordinary breathing exercises, the object of which is to increase the expansion of the chest, are useless, as the asthmatic patient is already capable of expanding his chest to the maximum. If an asthmatic patient is told to breathe deeply, his respiration is seen to be almost entirely upper thoracic; in chronic cases the lower part of the chest is already fully expanded and remains immobile, the diaphragm being used only to a slight extent. The exercises are designed to teach the patient, first, to use the lower part of the chest as well as the upper, and, secondly, to use the diaphragm more. They can be performed reclining on a bed, sitting on a stool or standing, according to the patient's state of health. In any case the body should be held loosely with the arms by the sides. The patient should face a mirror, so that he can watch the effect of the exercises on his chest. They should be carried out with the aid of a remedial gymnast, but

the patient should practice some of them daily for the rest of his life, even if he remains free from asthma for months or years. They should be performed before breakfast, when the patient is feeling fresh, before going to bed, to clear the lungs before sleep, and on the first sign of an impending attack, which may be aborted. Properly performed, they should cause wheezing and often coughing at the end of expiration. The exercises are mainly expiratory and the patient assists expiration by pressure with his hands on the lower part of the chest.

PARIS

(From Our Regular Correspondent)

Feb. 4, 1935.

The Ear and Industrial Medicine

The ear and industrial medicine was the subject of a discussion at the French otorhinolaryngologic congress in October 1934. The first paper was by Caussé. Only five countries (Bulgaria, Czechoslovakia, Germany, Mexico and Russia) have placed deafness that is the result of the worker's occupation on an equal footing, so far as indemnity is concerned, with invalidity due to lead or mercury poisoning. There is no law of this kind in France.

Deafness from the standpoint of industrial medicine may be the result of injury to the skull, electricity, compressed air or intoxications and is also found in those engaged in occupations such as metallurgy and steel construction. The majority of cases of deafness in workers are due to traumatism of the head. Longitudinal fractures of the petrous portion of the sphenoid traverse the middle ear, while transverse fractures are more likely to involve the internal ear. The otologist is consulted most frequently in cases in which there has been a simple concussion of the brain without accompanying skull fracture. There is an absence of any relation between the degree of the injury and its sequelae. The patients in this first group are more likely to suffer from deafness than from vertigo.

Deafness due to electricity does not occur very often. Deafness may result in cases in which the current has not traversed the ear. In patients in this group the signs of deafness may appear quite a long time after the accident, thus making it difficult to determine the part the electrical shock has played. Accidents due to lightning belong in the same group. In divers or caisson workers the deafness is due to microscopic air emboli as shown by Paul Bert, the cochleovestibular apparatus being especially affected. One finds a sudden deafness or vertigo or both in most cases, but in some the symptoms do not appear immediately. Deafness or vertigo in such cases is not always permanent. Deafness due to intoxications is also not frequent, being seen most in the lead and next often in the mercury, arsenic or phosphorus industries. Deafness in those occupied in boiler or other riveting or railroad work is of increasing interest to otologists and is growing in proportion to the development of machinery in general. The otologist in making his report must always keep in mind the possibility of malingering; hence a thorough knowledge of the physiology of the internal ear is necessary.

In the discussion, Barraud of Lausanne emphasized the part played by modern mechanical devices and called attention to the deafness of soldiers in machine gun companies. Jacques of Nancy said that all cases of head or face injury should be examined as soon as possible after the accident.

Relation of Diabetes to Tuberculosis

A study of ninety-five cases observed at Labbé's clinic has been made by Thiéry. Pulmonary tuberculosis is the cause of death in 40 per cent of diabetic patients and this percentage rises to 60 in severe diabetes accompanied by lack of assimilation of proteins. In severe cases of diabetes without such a metabolism disturbance, tuberculosis is fatal in 30 per cent. Tuberculosis may complicate diabetes at any period of life, even in children in whom insulin has reduced the likelihood of a coma.

Certain types of infection, especially those due to pneumococci, favor the rapid development of pulmonary tuberculosis in diabetic patients. The latter disease in general favors such a complication on account of its tendency to disturbance to protein metabolism and the hyperglycemia. Reciprocally, an incipient tuberculosis or at least one subject to frequent acute exacerbations increases the severity of the diabetes. It causes acidosis to appear in 90 per cent of diabetic patients, and in 40 per cent such an acidosis is not compensated for, with resultant decrease in the alkali reserve and the development of a precomatous state. Tuberculosis causes carbohydrate intolerance and hence recurrence of the severe diabetic symptoms at the same time as the tuberculosis begins to manifest more acute signs. In 15 per cent of patients with diabetes, the tuberculosis appears in a pneumonia-like manner. In about 16 per cent the onset is insidious with emaciation, loss of appetite and a subfebrile condition, while in 71 per cent there is a marked rise of temperature. Pneumothorax treatment should always be accompanied by reduction of carbohydrates and the administration of insulin. Such a treatment has resulted in a mortality of only 65 per cent during a period of four years in Labbé's service. Untreated pulmonary tuberculosis complicating diabetes results fatally almost invariably in eighteen months at the most.

Gonorrhea in Its Relation to Pregnancy

A careful study of 142 cases made at one of the large Russian maternities by Astrinsky and Grinner appears in the November 1934 issue of the French journal *Gynécologie et obstétrique*. The gonorrhea was verified bacteriologically in 135 of the 142 cases, and in the remainder the clinical changes were the basis of the diagnosis. Gonorrheal cervicitis and salpingitis do not exclude the possibility of conception. Pregnancy can activate a latent gonorrhea. The disease presents itself in a much more acute manner during pregnancy than in the nonpregnant female. Such complications as postpartum hemorrhage, abortion during pregnancy and hemorrhage during the puerperium are common. The presence of gonococci in the lochia does not give rise to any postpartum febrile reaction. The later the gonorrheal infection takes place in pregnancy, the more severe are the postpartum complications. One ought to treat gonorrhea during pregnancy in the same manner as in the nonpregnant patient.

Honorary Degree Bestowed on Professor Eiselsberg

At the beginning of each academic year it is the custom for the University of Paris to give honorary degrees to those whom the various faculties, law, sciences, letters and medicine, recommend. Last year Dr. Harvey Cushing was thus honored, and this year Professor Eiselsberg of Vienna. Dean Roussy of the Faculty of Medicine eulogized Professor Eiselsberg in an eloquent address as being one of the pioneers, along with Billroth, of modern surgery. The career of Professor Eiselsberg has been a long one, and he has shown the unbiased method of thinking and the desire to investigate every new problem, which represents the highest type of modern research. Eiselsberg's work on the surgery of the thyroid, of the alimentary canal, of tumors of the nervous system and especially on that of the hypophysis, has been the means of aiding the rapid development of these subjects. Even though he has retired from teaching at the University of Vienna, Eiselsberg not only continues to work in his large private practice but follows with the keenest interest the progress of that branch of medicine to which he contributed so much. Many American surgeons who have visited the clinic of Professor Eiselsberg at Vienna will hail this recognition of his work as a justly merited honor.

Death of Dr. Lucien Camus

The director of the vaccine laboratory of the Academy of Medicine, Dr. Lucien Camus, died early in November 1934. He rendered invaluable services in the development of the technic of preparation of variola vaccines and the organization of centers all over France for such preparation. His work on the effect of currents of short wavelength on variola vaccine is well known. His annual report to the Academy, on vaccination as a prophylactic measure against variola, was one of the most thorough of its kind.

BERLIN

(From Our Regular Correspondent)

Nov. 19, 1934.

The Cost of Health Insurance in 1933

The expenditures of the municipal krankenkassen during the year 1933 have just been made public. The status of the krankenkassen as such has already been reported. The total expenditures (inclusive of losses incurred by the disposal of property and by other disbursements) of the municipal krankenkassen reached during 1933 the total of only 676.6 million RM compared to 713.2 million RM in the preceding year. In apportioning the total expenditures for 1933 to each member the sum is 59.84 RM, compared to 60.80 RM in 1932. The greatest portion of the total expenditures (79.6 per cent) was disbursed for sick benefit to the insured and their families. The average expenditure for sick benefit for each member and his family was 47.63 RM. Of this amount the disbursement for medical and dental services was 18.72 RM, for medicines 6.80 RM, for hospitalization and other nursing care 10.50 RM, and for sick pay, household and other expenditures, 11.60 RM.

The expenditures for the care of puerperal women amounted to 43.2 million RM in all; that is, to 6.4 per cent of the total disbursements. During 1932, 51.4 million RM was expended for this purpose. The disbursements for burial expenses amounted to 4.7 million RM during 1933. The costs of administration were 82.8 million RM in 1933 compared to 89.5 million RM in 1932; for each member these expenses have been decreased from 7.62 to 7.32 RM. The administration expenditures amounted to 12.2 per cent of the total disbursements and to 12.8 per cent of the income from premiums.

Within the scope of the benefits to the insured and the members of their families, the treatment by licensed physicians (inclusive of services in kind and of transportation costs) called for 25.3 per cent of the income from premiums during the year 1933; 7.1 per cent of the income from premiums was expended for dental care, 10.5 per cent for medicine, 17 per cent for care in hospitals (exclusive of sojourns in spas) and 19.3 per cent for sick pay in cash.

New Details of Professional Affairs

The newly founded Academy for Medical Graduate Work in Berlin, which succeeded the older graduate institute, instructed about 1,200 physicians during the summer semester of 1934 in fifty courses. The majority came from the various parts of Germany (non-Aryan citizens of the reich are not admitted to these courses). This academy has a staff of about 300 docents, who have at their disposal about 30,000 beds in the various hospitals of Berlin. The academy is supported by the city of Berlin.

The regulations so far have not made it possible to exclude physicians with a questionable mental status. Now it has been decreed that admittance to the medical examination and to the practical year following the state medical examination is to be refused, when, as the result of a mental disease or of some addiction, the candidate has not the reliability that is required for medical practice. To prevent the admittance of such persons into the profession, the directors of hospitals are requested to indicate their observations to this effect in the certificates of the interns or to report to the ministry.

The federal commissioner decreed that all medical societies of Berlin inform him of the time and the program of their next session early enough so that it may be approved. The scientific societies, the National Socialistic Physician's Association and the Association of German Physicians are exempted from these regulations.

The Berlin director of the organization of the insurance physicians of Germany decreed that insurance physicians who desire to spend their vacation in a foreign country must report this in advance to the organization and state the duration, the reason of their foreign sojourn and their address in the foreign country. The furlough in a foreign country requires in all cases previous official consent; a prolongation is generally not permissible.

The chairman of the physician's organization in Düsseldorf sent a circular letter to the members of his organization, which reads as follows: "The Marienhospital in Düsseldorf, at the election, August 19, rejected the leader and National Socialism by more than 50 per cent. This election result signifies a challenge to the profession, to the city and beyond that to the state. The medical profession of Düsseldorf will attempt to redress this alien attitude by a strict boycott of the hospital up to a complete economic destruction. I therefore decree that transfer of patients to the Marienhospital is forbidden. The German physicians who send their patients to this hospital in spite of this regulation will be named publicly in a circular letter." This letter was published in a great medical publication.

Recommendations Concerning Abortifacients

The measures adopted by Germany in the campaign against abortion constitute one of the causes of the increase in the birth rate. However, the professors of legal medicine have reached the conclusion that the new penal regulations in regard to the sale of abortifacient instruments have not accomplished their aim in the desired extent. For this reason they advocate the following extension of the regulations: All instruments and apparatus that may be used by the public for abortive measures, for instance, so-called uterine catheters, uterine cannulas or tubes, uterine speculums, irrigation apparatus and especially so-called balloon syringes with long thin tubes, as well as the various types of pessaries, are to be withdrawn from the open market. All these should be sold only as medical instruments in the stores specializing in them and by the apothecaries. They should be sold only with a physician's prescription. If necessary, the manufacture of such instruments that are intended for abortifacient purposes should be prohibited.

The Bureau for the Welfare of Youth

Dr. Lottig of Hamburg has explained that the physician's work in the bureau for the welfare of youth is the most interesting of the social activities of the physician. The medical points of view are of especial importance in connection with the work of the youth welfare bureau. The hereditary problem is the focal point in every case. The number of charges of the Hamburg youth bureau averages 35,000 yearly and among them are 4,600 inmates of institutions, of whom 1,600 have been put into institutions because of inadequate training and destitution. The various forms of productive welfare work are extended yearly to about 10,600 charges. The part played by physicians in this work is indicated by the fact that more than 3,400 cases require psychiatric consultation. It is the task of the neurologic-psychiatric-pedagogic section to make a prompt but thorough diagnosis. Other important spheres of action are the clinical diagnosis in the observation ward, cooperation in the guardianship decisions, in the juvenile court, in the estimation of juvenile witnesses in penal lawsuits, in arrangements for adoptions and finally in the study of the numerous cases of sterilization.

Dangers to Health of Uninterrupted Working Periods

The medical committee of the German Society for Industrial Hygiene has set up "principles for regulating the hours of work and of recesses from the standpoint of health." These principles state that the uninterrupted working period is detrimental to health, and they reject it. They recommend the introduction of a divided working time wherever the management of the establishment and the transportation permit it. They recommend a noon recess of two hours, so that the worker may be enabled to go to his home. When this is impossible, there should be suitable recesses so that the workers may take a warm meal at their place of work at noon.

Death of Professors His, Strasburger and Hahn

The well known internist of the University of Berlin, Prof. Wilhelm His, died Nov. 10, 1934, shortly after his retirement on account of a chronic ailment. His accomplishments were recounted here a short time ago, on the occasion of his seventieth birthday (THE JOURNAL, Feb. 10, 1934, p. 471).

The well known internist and the director of the medical policlinic of the University of Frankfort-on-Main, Prof. Dr. Julius Strasburger, died, Oct. 27, 1934, at the age of 63. Shortly before, he had resigned from his teaching position as ordinarius. In addition to the policlinic he directed the institute for physical therapy. Together with Adolf Schmidt he had published important studies on intestinal disorders.

Prof. Dr. Martin Hahn, who for many years was ordinarius for hygiene at the University of Berlin, died at the age of 70. After his research work in the cholera district of Astrakhan, as a young man, his scientific career was assured. As the assistant of Hans Buchner in Munich, who received the Nobel prize, he became known through his collaboration in research on zymase. He was one of the first to devote himself to the problem of physical work and occupational therapy. He greatly promoted social and industrial hygiene and sanitation and early gave all the force of his authority to the racial hygiene movement.

JAPAN

(From Our Regular Correspondent)

Nov. 30, 1934.

Essay on Recovery of Medical Prosperity

The *Japanese Medical Journal* offered a prize for an essay on "How to Tide Over the Present Difficult Situation in the Medical Profession." In a six months period eighty-three essays were received, most of them written by practitioners. The winners were recently made known. Dr. K. Nakadate won the first prize, 500 yen. In his essay he said that the causes of the present difficulties are, first, the surplus of physicians, which must be corrected by changing the system of medical education so as to divide the specialists and the general practitioners. The last two years in the medical college should be devoted to specialized education and the previous years to general education. A certificate for practice should be given after two years' practical training in approved hospitals after the student has finished the college courses. In the second place, any treatment done by those who are not physicians but are now sanctioned by the local governments should be entirely prohibited except when the practitioner recommends that they treat a patient under his personal guidance. Third, any health benefit associations organized under the pretext of lower medical fees should be dissolved, as they tend to commercialize the profession and prevent patients from exercising a free choice of physician. Fourth, the indiscriminate manufacturing of new medicines should be ended by careful regulation. The doctor with little experience is more apt to administer expensive new medicines and this is one reason for the high cost of medical care. The selling of medicine by practitioners has caused many complaints, and the lower classes are inclined to refrain from consulting the doctor lest they be obliged to pay too much. This is an essential cause of the present trouble, to say nothing of the general business depression. Fifth, medical advertisements, especially on the roadsides or in the stations or on roofs, should be utterly prohibited. They destroy dignity and induce the people to despise medicine. Supplementary education to promote the practitioner's knowledge should be published by the medical association in a periodical with the latest scientific research and clinical experiences of physicians. Concluding, he says that there should soon be established the most rational medical system. The tendency of regarding medical practice as a commercial product he despises. He holds that medicine is a benevolent art and should be practiced in this principle.

Death of Dr. Kagami Fujinami

Dr. Kagami Fujinami, honorary professor of the Kyoto Imperial University, died November 18, aged 64. He obtained fame through his studies of a disease due to a Japanese blood-sucking parasite for which he was awarded the Imperial prize in the Imperial Academy in 1918. Thanks to his research, this disease was completely stamped out of those provinces where it formerly raged. A monument stands there to commemorate his achievement. He was a man of noble character from his boyhood, and he was always above riches and honors. He was called an infant prodigy and once was awarded a prize while still in primary school for reading a short story, when Emperor Meiji happened to visit his school. He graduated from the Tokyo Imperial University in 1895 and went to Germany, where he stayed four years. On returning home he was appointed professor at Kyoto. Dr. Goichi Fujinami is his younger brother.

The Age Limit for Professors

The present age limit for professors of the imperial universities was first established in 1918 in the Tokyo Imperial University on the motion of professors of the medical department. Since then the question has been raised whether it is proper or unreasonable, but it has been faithfully obeyed as an unwritten law though it was merely a gentlemen's agreement. Sixty years, some think, is too early to retire. Prof. Dr. K. Manabe, who has been about a year in Europe and America, has written on this subject in the *Varsity Press*, saying that the age limit should be abolished, as the age limit in Italy is 75, in Greece and France 70, in Germany from 65 to 68, and in Switzerland 70 years. Some are of the opinion that the age of 60 is the time when man is intellectually in his prime. It is absurd to apply the age limit uniformly without considering some personal factors. This law is now enforced only in the government universities, with one exception. If there is any good reason for this law, it ought to be enforced among other colleges. Some who have retired under this system have soon after been appointed to important offices. That there are many positions open to the retired professors better than the old post shows that it is not a disgrace to retire at 60; on the other hand, the present plan permits energetic young scholars to find their way to a professorship.

Personals

Dr. Sennosuke Yokote, director of the Natural Science Research Institute at Shanghai, China, has tendered his resignation on account of illness. His successor is said to be Dr. Shinzo Shinjyo, ex-president of Kyoto Imperial University.

Prof. Inokichi Kubo of the Kyushu Imperial University medical department will resign shortly, as he has reached the age limit. He was the founder of the section of otorhinolaryngology and has been professor for thirty-five years. He and his wife have attained fame as poets.

Dr. Masanori Nakazumi will be promoted to professor and hold the new chair of roentgenology in the Imperial University of Tokyo.

Marriages

JOHN ROLAND UPTON, San Francisco, to Miss Anna Logan Sloan of Paris, France, in New York, Dec. 25, 1934.

JOHN J. SHOBER, Philadelphia, to Miss Emelya M. McCormick of Atlantic City, N. J., Dec. 22, 1934.

PAUL Q. DANIEL, Deltaville, Va., to Miss Salome Virginia Butler of Richmond, Nov. 1, 1934.

ELLIS R. CRANDLE, Gorham, Ill., to Miss Virginia Lee Williams of St. Louis, Nov. 28, 1934.

CAESAR F. SARNI, Norristown, Pa., to Miss Antoinette Lalcone of Bangor, Oct. 27, 1934.

EDGAR CHILDREY JR., Rochester, Minn., to Miss Irene Hill of Piqua, Ohio, Oct. 20, 1934.

ROBERT H. MCKELVEY, Bethesda, Ohio, to Miss Martha Talbott of Ellsworth, recently.

WALTER L. WINKENWERDER to Miss Eleanor Zouck, both of Baltimore, Dec. 1, 1934.

SAMUEL J. WEITZEN to Miss Elsie Glasser, both of New York, January 15.

Deaths

James Francis Coupal, Washington, D. C.; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society, the Medical Society of the District of Columbia, and the American Association of Pathologists and Bacteriologists; served during the World War; entered the medical corps of the regular U. S. Army in 1920 as a major; in 1924 was appointed physician to the White House by President Coolidge; later by act of Congress was appointed a colonel in the U. S. Army; resigned in 1929; formerly curator of the Army Medical Museum; past president of the International Association of Medical Museums; aged 50; died, January 3, in the Walter Reed General Hospital, of cerebral hemorrhage.

David James Gibb Wishart, Toronto, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1885; emeritus professor of otology and laryngology, University of Toronto Faculty of Medicine; member of the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; consultant to the department of otolaryngology, Toronto General Hospital and Hospital for Sick Children; aged 75; died, Dec. 5, 1934.

Ira Hugh Dillon ● Topeka, Kan.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; member of the American Academy of Ophthalmology and Oto-Laryngology; served during the World War; fellow of the American College of Surgeons; on the staff of the Atchison, Topeka and Santa Fe Railway Hospital; aged 61; died, Nov. 16, 1934, of coronary thrombosis.

Millard Fillmore Jarrett, Fort Scott, Kan.; Bellevue Hospital Medical College, New York, 1892; past president of the Kansas Medical Society; in 1915 Member of the House of Delegates of the American Medical Association; in 1922 president of the Mid-West Academy of Ophthalmology and Oto-Laryngology; on the staff of the Mercy Hospital; aged 77; died, Nov. 21, 1934, following an operation on the prostate.

Max Lionel Ignatoff, Newark, N. J.; Tufts College Medical School, Boston, 1926; member of the Medical Society of New Jersey; aged 31; on the staff of the orthopedic clinic of the city board of health; on the staffs of the Crippled Children's Hospital, the Presbyterian Hospital, the Newark City Hospital and the Beth Israel Hospital, where he died, Dec. 25, 1934, of chronic nephritis and hypertension.

Allyn Bernard Moise ● Shreveport, La.; Tulane University of Louisiana Medical Department, New Orleans, 1903; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staffs of the Schumpert Memorial, North Louisiana and Highland sanitariums and the Tri-State Hospital; aged 57; died, Dec. 23, 1934, of pneumonia.

Alexander McPhedran, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1876; professor emeritus of medicine at his alma mater; past president of the Association of American Physicians, the Canadian Medical Association and the Academy of Medicine of Toronto; on the staff of the Toronto General Hospital; aged 87; died suddenly, Dec. 19, 1934, of pulmonary edema.

Reginald Lloyd Prees, North Fond du Lac, Wis.; University of Pennsylvania School of Medicine, Philadelphia, 1917; served during the World War; past president of the Fond du Lac County Medical Society; president of the board of education and village health officer; aged 43; died, Dec. 19, 1934, in the Veterans' Administration Facility, Milwaukee, of cerebral hemorrhage.

Paul Peyton Lane ● Wilson, N. C.; University of Maryland School of Medicine, Baltimore, 1908; past president of the Wilson County Medical Society; fellow of the American College of Surgeons; served during the World War; on the staff of the Moore-Herring Hospital; aged 47; died suddenly, Dec. 20, 1934, of heart disease, while on a golf course in Waycross, Ga.

Frederick Greene Barfield, Jacksonville, Fla.; University of Virginia Department of Medicine, Charlottesville, 1897; member of the Florida Medical Association and the Medical Association of Georgia; served during the World War; aged 61; died, Dec. 25, 1934, of cerebral hemorrhage, uremia and nephritis.

William Delano Garlock, Little Falls, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; member of the Medical Society of the State of New York; past president of the Herkimer County Medical Society; aged 79; died, Dec. 15, 1934, of heart disease.

Chester A. Hemstreet, Troy, N. Y.; Albany Medical College, 1905; member of the Medical Society of the State of New York; on the staffs of the Leonard and Samaritan hospitals; aged 52; died, Dec. 13, 1934, of intestinal hemorrhage following an automobile accident.

William Henry Crook, New Brockton, Ala.; Medical College of Alabama, Mobile, 1884; member of the Medical Association of the State of Alabama; Confederate veteran; aged 88; died in December 1934 at Bethany, of fracture of the femur as the result of a fall.

Jesse H. Mitchell, Ahoskie, N. C.; College of Physicians and Surgeons, Baltimore, 1879; formerly mayor, postmaster and justice of the peace; for many years member of the county board of health and board of education; aged 77; died, Dec. 8, 1934, of diabetes mellitus.

Eugene Leo Broeker, St. Louis; St. Louis University School of Medicine, 1911; member of the Associated Anesthetists of the United States and Canada; on the staff of the De Paul Hospital; aged 53; died suddenly, Dec. 24, 1934, of heart disease.

Lee Somerville, North Creek, N. Y.; Albany (N. Y.) Medical College, 1899; for many years health officer of North Creek; formerly member of the school board; aged 60; died, Dec. 16, 1934, in the Memorial Hospital, Albany, of mesenteric thrombosis.

Daniel Calvin Corriher ● A. Surg., Lieut. (j. g.) U. S. Navy, Landis, N. C.; Emory University School of Medicine, Atlanta, 1931; entered the navy in 1931; aged 33; died, Dec. 13, 1934, in the U. S. Naval Hospital, Washington, D. C., of pneumonia.

Thomas Clarke Graves, Memphis, Tenn.; Memphis Hospital Medical College, 1894; formerly county health officer; on the staff of the Shelby County Emergency and Pellagra Hospital; aged 64; died, Dec. 24, 1934, of carcinoma of the prostate.

Herman Holmes Bogle, Pittsburg, Kan.; College of Physicians and Surgeons of Chicago, 1893; member of the Kansas Medical Society; formerly on the staff of the Mount Carmel Hospital; aged 67; died, Oct. 26, 1934, of peripheral neuritis.

Henry Edward Sauer, Miami, Fla.; Northwestern University Medical School, Chicago, 1896; at one time instructor in gynecology at his alma mater; for many years on the staff of the Grant Hospital, Chicago; aged 66; died, Dec. 10, 1934.

Christopher S. Best, Middleburg, N. Y.; Eclectic Medical College of the City of New York, 1876; member of the Medical Society of the State of New York; president of the board of education; aged 82; died, Dec. 20, 1934, of cerebral hemorrhage.

Roy William Merkle ● Alton, Ill.; Creighton University School of Medicine, Omaha, 1927; formerly city health officer; aged 33; on the staff of St. Joseph's Hospital, where he died, Dec. 23, 1934, of septicemia, following an infection of the finger.

Gerhard Hiebert, Winnipeg, Manit., Canada; McGill University Faculty of Medicine, Montreal, 1900; fellow of the American College of Surgeons; consulting surgeon to the Winnipeg General Hospital; aged 66; died, Dec. 25, 1934.

Edward Randolph Perry, Tacoma, Wash.; Medical College of Ohio, Cincinnati, 1896; coroner; served during the World War; aged 62; died, Dec. 19, 1934, in the Veterans' Administration Facility, American Lake, of cerebral hemorrhage.

Hugh Darby Logan, Portland, Ore.; University of Oregon Medical School, Portland, 1934; aged 26; an intern at the Multnomah Hospital and the Doernbecher Hospital for Children, where he died, Nov. 30, 1934, of pneumonia.

Alfred Wanzer Love, Providence, R. I.; University and Bellevue Hospital Medical College, New York, 1901; member of the Rhode Island Medical Society; aged 55; died, Nov. 16, 1934, of myocarditis and coronary thrombosis.

Stephen Benton Elrod ● Henryville, Ind.; Hospital College of Medicine, Louisville, Ky., 1898; served during the World War; aged 61; died, January 2, at the Norton Infirmary, Louisville, Ky., of heart disease.

Edward Charles Rochette ● Worcester, Mass.; Harvard University Medical School, Boston, 1903; aged 54; died, Dec. 13, 1934, in St. Vincent Hospital, of duodenal ulcer, following an operation for subtotal gastrectomy.

Frank Cornelius Leytze, Seattle; Jefferson Medical College of Philadelphia, 1904; member of the Washington State Medical Association; aged 59; died, Nov. 30, 1934, of chronic nephritis and cerebral hemorrhage.

William Hunt Blankenship, Pine Bluff, Ark.; College of Physicians and Surgeons, Baltimore, 1893; member of the Arkansas Medical Society; aged 68; died, Dec. 12, 1934, of carcinoma of the intestine.

Milford Winslow Rozzell, Hopkinsville, Ky.; Kentucky School of Medicine, Louisville, 1889; aged 77; died, Dec. 10, 1934, at the home of his daughter near Pryorsburg, of chronic interstitial nephritis.

George Farwell Dow ● Reading, Mass.; Harvard University Medical School, Boston, 1896; veteran of the Spanish-American and World wars; aged 65; died, Dec. 9, 1934, of angina pectoris.

Joseph Thomas Hanna, Chugwater, Wyo.; Medical College of Indiana, Indianapolis, 1881; member of the Wyoming State Medical Society; aged 78; died, Dec. 10, 1934, of cerebral hemorrhage.

Joseph Clement Kochczynski ● Hazleton, Pa.; Medico-Chirurgical College of Philadelphia, 1913; served during the World War; aged 49; died, Dec. 1, 1934, of acute hyperthyroidism.

George Anson Cristler, Hookstown, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1889; formerly member of the school board; aged 82; died, Nov. 27, 1934, of arteriosclerosis.

Peter Harrison Luttrell ● San Francisco; Cooper Medical College, San Francisco, 1908; aged 56; was found dead, Dec. 17, 1934, in his automobile, of carbon monoxide poisoning.

James Edwin Campbell Taylor ● Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1928; aged 35; died, Dec. 12, 1934, in the University Hospital, of influenza.

John William Jeffries, Mission, Texas; Marion-Sims College of Medicine, St. Louis, 1896; member of the State Medical Association of Texas; aged 73; died, Dec. 12, 1934.

Albert Gordon Hinman, Honeoye Falls, N. Y.; Cleveland Homeopathic Medical College, 1903; aged 53; died, Nov. 27, 1934, of hypertension and cerebral hemorrhage.

George W. Webb, Redboiling Springs, Tenn.; University of Tennessee Medical Department, Nashville, 1888; aged 86; died, Nov. 2, 1934, of carcinoma of the spleen.

Sidney Ray Dannenbaum ● San Francisco; University of California Medical Department, San Francisco, 1906; aged 53; died suddenly, Dec. 23, 1934, of heart disease.

Charles Chainor Henin, Springfield, Mass. (licensed in Massachusetts in 1896); aged 61; died, Dec. 14, 1934, in the Mercy Hospital, of hypertensive heart disease.

Albert Lafayette Levy, Baltimore; University of Maryland School of Medicine, Baltimore, 1903; aged 52; died suddenly, Dec. 29, 1934, of coronary thrombosis.

Samuel Harris Ganser, Chicago; Reliance Medical College, Chicago, 1911; aged 48; died, Dec. 23, 1934, of arteriosclerotic myocarditis and pulmonary edema.

Nathaniel Rives Newman, Covington, Tenn.; Vanderbilt University School of Medicine, Nashville, 1899; aged 59; died, Nov. 30, 1934, of hypertensive heart disease.

Edmund T. May, Warthen, Ga.; University of Maryland School of Medicine, Baltimore, 1885; aged 73; died, Dec. 13, 1934, of cerebral hemorrhage and nephritis.

Charles Duane Cobb, San Diego, Calif.; St. Louis University School of Medicine, 1904; aged 68; died, Nov. 28, 1934, of angina pectoris and coronary sclerosis.

Horace B. Lashlee, Redlands, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1877; aged 88; died, Nov. 14, 1934, in Beaumont, of arteriosclerosis.

William A. Mathews, Hawkinsville, Ga.; Atlanta College of Physicians and Surgeons, 1900; aged 72; died, Nov. 21, 1934, in Thomasville, of heart disease.

Clarence M. Schellinger, Deptford Township, N. J.; Jefferson Medical College of Philadelphia, 1879; aged 85; died, Oct. 16, 1934, of cardiorenal disease.

Gustavus French Harvey, Los Angeles; Rush Medical College, Chicago, 1876; aged 85; died, Nov. 27, 1934, of hypertension and cerebral hemorrhage.

Frederick Elmer Jones ● Brookline, Mass.; Baltimore University School of Medicine, 1897; aged 64; died suddenly, Dec. 21, 1934, of heart disease.

John C. Bottorff ● Corydon, Ind.; University of Louisville (Ky.) Medical Department, 1896; aged 68; died suddenly, Dec. 15, 1934, of heart disease.

Edmund Oliver Hallett, Weymouth, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., 1885; aged 73; died, Sept. 3, 1934.

Robert Emmett Jones, Philadelphia; University of Michigan Medical School, Ann Arbor, 1881; aged 74; died, Dec. 8, 1934, of cerebral embolism.

Daniel Sigler, Elwood, Ind.; Miami Medical College, Cincinnati, 1874; aged 91; died, Dec. 17, 1934, of bronchopneumonia and mitral stenosis.

Todd R. Boden ● McIntyre, Pa.; Jefferson Medical College of Philadelphia, 1910; aged 55; died, Dec. 25, 1934, of a self-inflicted bullet wound.

Marion Lee O'Banion, Houston, Texas; Chattanooga (Tenn.) Medical College, 1904; aged 61; died, Oct. 28, 1934, of chronic myocarditis.

Frank M. Tebbetts, Chicago; College of Physicians and Surgeons of Chicago, 1885; aged 70; died, Dec. 21, 1934, of chronic myocarditis.

George Corbin Bryan, Barstow, Calif.; Baltimore Medical College, 1896; aged 64; died, Nov. 3, 1934, in Yuma, Ariz., of diabetes mellitus.

Henry W. Johnson, Port Byron, Ill.; Hahnemann Medical College of Philadelphia, 1882; aged 80; died, Nov. 25, 1934, of coronary sclerosis.

James Paul Spackman, Brownsville, Pa.; Jefferson Medical College of Philadelphia, 1896; aged 63; died, Nov. 17, 1934, of angina pectoris.

James McWilliam, Toronto, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1876; aged 81; died, Oct. 11, 1934.

Frank Vanderlip, Brampton, Ont., Canada; University of Toronto Faculty of Medicine, 1905; aged 54; died suddenly, Oct. 20, 1934.

Robert Tannahill McNair, Emporia, Va.; Medical College of Virginia, Richmond, 1900; aged 56; died, Dec. 9, 1934, of pneumonia.

Henry Francis Strub, St. Louis; St. Louis University School of Medicine, 1926; aged 33; died, Dec. 10, 1934, of heart disease.

Fred Stainsby, Hollyburn, B. C., Canada; University of Toronto (Ont.) Faculty of Medicine, 1911; aged 49; died, Nov. 8, 1934.

Mildred Jessie Roberts Broman, Evanston, Ill.; Rush Medical College, Chicago, 1916; aged 43; died, January 4, of pneumonia.

Roy White McClintock, Chicago; Harvey Medical College, Chicago, 1904; aged 57; died, January 2, of coronary occlusion.

Henri Trudel, St. Gregoire, Que., Canada; Laval University Faculty of Medicine, Quebec, 1878; aged 80; died, Sept. 16, 1934.

John Newhall Kirk, Easton, Pa.; Medical College of Ohio, Cincinnati, 1895; aged 61; died, Dec. 3, 1934, of heart disease.

William R. Smyth, Morning Sun, Iowa; Keokuk Medical College, 1896; aged 68; died, Dec. 21, 1934, of heart disease.

Joseph Roach, Baltimore; College of Physicians and Surgeons, Baltimore, 1891; died, Oct. 27, 1934.

Bureau of Investigation

MIN-AMIN

Another Anti-Fat Treatment of the Food-Powder Type

During the past few months a large number of inquiries have come to the Bureau of Investigation asking for information on a preparation sold for the treatment of obesity known as "Min-amin." The following letters are typical: From the northwest Dr. G. H. Wahle of Boise, Idaho, writes:

"Would you kindly inform me by return mail as to the content of a remedy known as Min-amin used for reducing weight, which is recommended and spoken of by Dr. Brady in his writings in the newspapers."

From the middle west Dr. Don Deal of Springfield, Ill., inquires:

"Min-amin, which is recommended by Dr. William Brady, who has a column of health notes daily in our local paper, is made by the National Institute of Nutrition, 6777 Hollywood Blvd., Los Angeles, Calif. Several patients have inquired about it and I would appreciate it very much if you would give me the information concerning it."

From the southwest Dr. Robert M. Purdie of Houston, Texas, writes:

"Do you have any information on 'Min-amin,' manufactured by the National Institute of Nutrition, Los Angeles, California? Appreciate information, rationale of its use, whether a scientific product, etc."

From New England Dr. Hugo O. Peterson of Worcester, Mass., writes:

"If you have analyzed Min-amin, a product recommended by Dr. Brady for reducing purposes, may I have your analysis?"

Many other inquiries have come from Nebraska, South Dakota, Minnesota, New Jersey, New York, Michigan, Wisconsin, Georgia and other states.

The only information regarding the composition of Min-amin that appears on the trade package—and therefore subject to control under the National Food and Drugs Act—is the vague statement that it is "a combination of pure food concentrates containing minerals and vitamins." Women who have written to Dr. William Brady, whose syndicated health columns appear in a number of papers throughout the country, and have asked how they can safely reduce their weight, have been sent a letter printed in imitation of typewriting under the general head "Personal Health Service." The opening paragraph of this form letter states that excess weight is usually associated with other physical impairments and makes the excellent suggestion that it is wise for the patient to have a complete physical examination by her family physician before entering upon any reduction regimen, followed by a regular check-up at least every week, so that the physician can determine whether the reduction is beneficial. Dr. Brady rightly emphasizes the fact that excess weight is usually due to overeating. He then propounds the thesis that fat people overeat "because most good, wholesome food is deficient in vitamins and minerals due to methods of purifying, refining, preserving, storing and cooking or preparing for table" and that hunger is a demand of the body not only for proteins, carbohydrates and fats, but also for minerals and vitamins. As, according to Dr. Brady, ordinary food fails to provide such vitamins and minerals, the overweight are led to eat excessively in an attempt to get the lacking accessory food factors.

In the same letter Dr. Brady recommends the use of Min-amin, and he says:

"With Min-amin, which is a concentrate of the essential minerals and vitamins in the *proper proportion* [Italics ours.—Ed.] this deficiency of everyday diet is corrected . . ."

Dr. Brady mentions, too, that if the local drug stores cannot supply Min-amin, the recipient can send $1.50 to the National Institute of Nutrition in Los Angeles and get a two-weeks' supply. In this connection, it is of interest to note that the National Institute of Nutrition is alleged to have been established in June, 1934, and to have been granted permission to issue 4,000 shares of capital stock of no par value. The men behind it are reported to be: Drs. Llewellyn R. Lewis, John Q. Scroggy and William Brady and Mr. J. Frank Brazelton. Drs. Lewis and Scroggy are practicing physicians. Dr. Brady does not practice. Mr. Brazelton is said to be an X-ray technician in the Hollywood Hospital.

A physician who wrote to the National Institute of Nutrition asking for information regarding the composition of Min-amin received a letter, signed Henry S. Mather, and a sample of Min-amin. The doctor was told that a supply of "instruction sheets" for dispensing or prescribing the product would be printed with the physician's name on them if he so desired. He was told, too, that Min-amin "provides in one product which is palatable a clinically-balanced ration of vitamins from natural sources." The physician also received a twenty-eight-page pamphlet entitled "Nutritional Obesity—Its Cause and Correction." The first chapter, dealing with weight reduction, states in the opening paragraph that reduction of excess weight in nutritional obesity could now "be done with all the assurance of safety, without the use of drugs and with little, if any, self-denial" and that the obese could be given "a practical regime that has been found to be universally applicable." In the same chapter Min-amin was described as "a clinically balanced food supplement containing vitamins." Part of the same thesis already propounded by Dr. Brady is dilated on in the pamphlet, namely, that the explanation of nutritional obesity is that the obese eat more food than their bodies require because of an unsatisfied hunger allegedly due to the fact that they are getting insufficient vitamins! As a corollary it is maintained that the obvious correction of nutritional obesity is "a reversal of the process," which can be accomplished by "providing a combination of food concentrates containing vitamins in proper clinical balance."

The only information in the pamphlet "Nutritional Obesity—Its Cause and Correction" regarding the composition of Min-amin is found in the chapter entitled "Food and Chemical Analysis." While this gives what is described as a "complete report of our analyses of Min-amin," it does not give any hint as to *what* Min-amin is. The analysis is given in terms of protein, fat, carbohydrates, fiber and mineral matter. These figures, on a moisture-free basis, read as follows:

	per cent
Protein	21.85
Crude Fat	14.40
Carbohydrates	54.05
Crude Fiber	0.80
Ash (Mineral Matter)	3.00

It also states that the fuel value of a dose (teaspoonful) of Min-amin is 41.84 calories.

An original package of Min-amin purchased direct from the National Institute of Nutrition was turned over by the Bureau of Investigation to the A. M. A. Chemical Laboratory for analysis. A condensed report from the Laboratory follows:

LABORATORY REPORT

"One original package of Min-amin (National Institute of Nutrition, Los Angeles, Calif.) was submitted by the Bureau of Investigation to the A. M. A. Chemical Laboratory for examination. The declared content was 5 oz. (approximately 150 Gm.). The package contained a substance having the flavor and general physical and chemical characteristics of a product such as wheat germ or embryo. A microscopic examination disclosed particles which indicated wheat embryo, wheat starch, wheat bran and other parts of wheat in small quantity. The product was also examined by a pharmacognosist who reported that the sample of Min-amin contained wheat germ meal. There were no tissues found except those of wheat. The amount of moisture found to be present was 6.5%.

"Quantitative determinations, calculated to the dry basis, were as follows:

Crude Protein	28.80
Crude Fat	17.14
Carbohydrates other than fiber	48.06
Crude Fiber	1.69
Ash	4.23

"On the basis of protein furnishing 4 calories, fat 9 calories, and carbohydrates 4 calories per gram, Min-amin has been calculated to furnish 439 calories per 100 grams or 1991 calories per pound. A moderately heaping teaspoonful was found to weigh 7 grams. On the foregoing basis, one heaping teaspoonful would furnish 30.73 calories.

"The composition of wheat germ or wheat germ meal varies according to the purity of the germ. References to the literature indicate that the purity of the wheat germ may vary considerably.

"From the foregoing it is concluded that the specimen of Min-amin consists essentially of a relatively pure sample of wheat germ."

It will be noticed that the figures furnished by the exploiters of Min-amin do not altogether agree with those given in the report from the A. M. A. Laboratory. However, the variations may be explained by the fact that commercial wheat germ or embryo is not constant in composition. It probably varies with different types of wheat and even in the same type grown on different soils or under different climatic conditions. Then the degree of refining in the separation of the germ may be a factor. If an appreciable quantity of the starchy part of the wheat remains with the germ, the carbohydrate content will be relatively high and the other components proportionately lower, or if the bran particles are not thoroughly removed, the fiber, protein and ash content will be increased proportionately to a certain extent.

The closing paragraph of the first chapter of the pamphlet "Nutritional Obesity," already referred to, explains how to use Min-amin in the reduction of weight. Essentially, the directions are for the obese to eat no breakfast and no luncheon, but to take instead of each of these meals a rounded teaspoonful of Min-amin in an eight-ounce glass of freshly-made unstrained orange juice. For dinner, or the evening meal, they must eat no breadstuffs, no potatoes, no fats, no sweets, and if a salad is used, it should be made with mineral oil. The obese are told that this regimen does not constitute "self-denial"!

That persons who follow the instructions that go with Min-amin may reduce weight is doubtless true. That they will have a balanced diet, and especially that they will have a diet that will have any particular appeal, seems, quite as obviously, untrue. Even if one assumes for the sake of argument that over-eating in the obese is due to a dietary deficiency of "vitamins and minerals," it should be patent to anyone who thinks that such alleged deficiencies if present will vary with the diet of the individual. How, then, can Min-amin, a powder of supposedly fixed composition, contain, as alleged, the "minerals and vitamins in the *proper proportion*" [Italics ours.—ED.] to correct the alleged deficiencies? Yet this claim is fundamentally the one on which the whole exploitation of Min-amin is based!

At this point it is also worth pointing out that no definite statements are made, either in the collateral advertising of Min-amin or on the trade package, regarding *which* vitamins are present, nor is there any hint, either in terms of recognized vitamin units or otherwise, as to *how much* of each vitamin may be present!

While the argument propounded by those who sell Min-amin that overeating in the obese is due to a lack of vitamins may lend an air of verisimilitude to an otherwise bald and unconvincing tale, it is not one that seems to be generally held by students of scientific nutrition. Wheat germ, which is what Min-amin is for all practical purposes, is rich in vitamin B. On the Min-amin theory, then, one would be led to expect that the obese had an unsatisfied hunger because of lack of vitamin B in their normal diet. The facts are, however, that it is rather generally held that lack of vitamin B in the diet definitely causes a *loss* of appetite instead of an *increase* of appetite.

In Min-amin itself there seems to be nothing novel or original. Other food powders have appeared on the market in the past year or two recommended as substitutes for breakfast and luncheon in the treatment of obesity. The one thing about Min-amin that is different is its method of exploitation. Those who sell most treatments for proprietary remedies have to pay newspapers or magazines their regular advertising rates for making the contact between seller and buyer. In the case of Min-amin the thing appears to be reversed. Newspapers that carry—and presumably pay for—Dr. Brady's health column furnish the contact between the sellers of Min-amin and the over-fat buyers! Thus the sellers of Min-amin appear to have solved what, to most sellers of proprietaries, is their greatest problem—the tremendous "overhead" due to advertising costs. Those who put out Min-amin appear to make their contacts through the reading pages (Dr. Brady's health column) instead of through the advertising pages of newspapers, and such reading matter is presumably paid for by the newspapers themselves. This is what seems to make the marketing of Min-amin unique in the field of proprietary products.

Correspondence

TEST OF GLOMERULAR EFFICIENCY

To the Editor:—Drs. Edward J. Stieglitz and Alva A. Knight in their preliminary report on "Sodium Ferrocyanide as a Clinical Test of Glomerular Efficiency" (THE JOURNAL, Dec. 8, 1934, p. 1760) gave no credit to the originators of this test when "presenting a new procedure."

Erich Leschke presented it (Histochemische Untersuchungen über die funktion der Niere und Leber, in the *Verhandlungen der deutschen Kongresses für innere Medizin*, Wiesbaden, 1914, p. 635, with Bunge). The first time sodium ferrocyanide as a renal functional test was spoken about was by Biberfeld and Basler.

Alois Wolff in reviving this test (Die geschlossene, kavernose Nierentuberkulose, in the *Zeitschrift für urologische Chirurgie* **6**:364, 1921) came to the conclusion that if the kidney function is sufficiently impaired the ferrocyanide salts are still traceable when neither indigocarmine nor phenolsulphonphthalein are eliminated any more.

GEZA SCHINAGEL, M.D., Detroit.

[This letter was referred to Drs. Stieglitz and Knight, who reply:]

To the Editor:—In reply to this note we wish to state that the reference to Leschke was unknown to us and failure to mention his work of 1914 entirely unintentional. It should be pointed out that prior to the work of E. K. Marshall Jr. (*Am. J. Physiol.* **98**:1 [July] 1930), J. G. Edwards (*Am. J. Physiol.* **98**:493 [Nov.] 1930) and of Gersh and Stieglitz (*Anat. Rec.* **58**:349 [March] 1934) there was no convincing evidence that ferrocyanide salts were excreted solely through the renal glomeruli. The earlier experimental work of Biberfeld and of Basler is discussed in some detail in the paper by Gersh and Stieglitz, to which reference is made in our clinical report in THE JOURNAL. The clinical application of sodium ferrocyanide as a significant test of glomerular efficiency was dependent on the experimental proof of the route and method of its renal elimination. There has been no wish to claim priority for the study of the kidney excretion of ferrocyanide salts, but the clinical application of the recent significant experimental work is original.

EDWARD J. STIEGLITZ, M.D.,
ALVA A. KNIGHT, M.D.,
Chicago.

TOTAL ABLATION OF THE THYROID

To the Editor:—Permit me to express my delight in Dr. Christian's communication concerning total ablation of the thyroid (THE JOURNAL, January 5, p. 64). Doubtless, this letter will create a stop movement in regard to this operation. Dr. Christian's authoritative voice must have a sobering effect on the enthusiasts.

It seems that my paper "Is Total Thyroidectomy Rational as a Method of Treatment?" (*Canad. M. A. J.*, November 1934), pursuing the same purpose, has appeared timely.

I differ with Dr. Christian on his assumption that the disturbing factors of cachexia strumipriva "will limit the applicability and the effectiveness of this new method of treating cardiac disease to a relatively small group of patients." When one speaks of selection of cases in a general way, it does not mean much. As I pointed out in my paper, so far there is no scientific way of defining such a group of patients. The investigators must work out a strict definition of such a group before offering the operation for general use. Cachexia strumipriva, which cripples the patient for the rest of his life, must be the lesser

evil in such cases. The selection of proper cardiac patients will be a difficult, if not an impossible, task.

Without an elaborate definition of the selected group, every physician will select cases according to his personal views. Under such circumstances the application of the operation will bring immeasurably greater harm than benefit to the people.

O. R. LOURIE, M.D., Boston.

DYSPNEA

To the Editor:—In an article entitled "Dyspnea" published in THE JOURNAL, Nov. 10, 1934, table 2, page 1444, Dr. J. C. Meakins assigns low blood pressure as the cause for dyspnea in insulin shock. The majority of investigators have found that insulin shock is accompanied by an elevation of systolic and a lowering of diastolic pressure, with a consequent increase in pulse pressure. It has been postulated by Cannon and his associates that this effect is due to an increase in secretion by the suprarenals.

MAX WISHNOFSKY, M.D., Brooklyn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VOMITING IN CHILDHOOD

To the Editor:—I have just returned from a call to a well developed boy who will be 6 years old next January. He never had any serious illness or any sickness of any kind until about eighteen months ago. Since then about once a month he has quit playing and goes to his mother complaining of nausea. Soon he begins vomiting, relaxes, turns pale and limber and then his bowels act, but not so loose. He goes to sleep rather irritable and after two or three hours wakes up all right and ready for a hearty meal. During the monthly intervals between spells he is just an average, natural, normal boy except that the father told me he was always hungry and could and did eat as much as he did. I learned in getting a history of the case that I am the sixth physician who has been called to treat him besides a chiropractor, an osteopath and a druggist. All of the physicians are among our best. One was our best pediatrician. None of the physicians who have treated him have done him any good and most of them were honest and frank enough to tell the parents that they did not know what was the trouble with the child. I am writing to you for any suggestions in the way of treatment, with this meager information, as I saw him today for the first time. I am beginning treatment and study on the theory that an intestinal parasite is the primary cause. Any help you can give me will be appreciated. Please omit name.

M.D., Texas.

ANSWER.—Vomiting is a common symptom in many disorders of childhood. Noteworthy points about the patient referred to are that he becomes acutely sick at intervals, with vomiting associated with pallor, prostration and evacuation of the bowels. He is ill for only a short time and awakens from his sleep feeling well and showing a good appetite. One would think principally of three conditions which might cause these attacks of illness: recurrent or cyclic vomiting, an allergic reaction or overfeeding.

Recurrent or cyclic vomiting is characterized by periodic attacks of vomiting, which continue even if no food is taken. The nausea and emesis last at least for several days. The patients as a rule are greatly prostrated. The breath usually has an acetone odor. In severe cases the liver may be enlarged. The urine shows the presence of acetone bodies, and the blood shows a hypoglycemia. The patient described in the query was not severely ill and the symptoms do not justify a diagnosis of cyclic or recurrent vomiting.

Acute vomiting and diarrhea may result from the ingestion of some food toward which the patient is sensitive or, to use an older expression, toward which the patient has an idiosyncrasy. There are many foods toward which patients react in this way, notably milk, eggs, fish, some of the cereals, meats of various kinds, and a great number of other food substances. The patient who manifests these allergic attacks often shows an eosinophilia in the blood as well as in the stools. The sensitivity of these patients may be tested by determining the skin reaction to certain foods, or the elimination test may be employed, which consists of omitting those substance entirely from the diet which are suspected of producing gastro-intestinal symptoms.

Overfeeding may produce indigestion and gastro-enteric symptoms that are usually temporary in character, causing not only vomiting and diarrhea but abdominal pain as well.

Obviously, appendicitis may be excluded because of the lack of localized pain and tenderness and the evanescent character of the attacks.

If the patient is to be treated for intestinal parasites, it would be well to confirm the diagnosis either by observing the presence of worms in the stools or by identifying the ova by microscopic examination of the intestinal discharges.

It would seem that the most rational treatment should be directed toward regulation of the diet and the avoidance of overfeeding as well as the use of coarse and indigestible foods. If skin or elimination tests show that the patient is sensitive to certain food substances, they should be eliminated from the diet.

ETIOLOGY OF HYPERTENSIVE DISEASE

To the Editor:—In the comment on a book on the treatment of arterial hypertension (THE JOURNAL, September 8, p. 779) the reviewer mentions that "logical curative therapy must be based on an understanding of etiology and pathogenesis." Since many physicians have never had an understanding of the etiology and pathogenesis present in the vast majority of cases of primary arterial hypertension, will you kindly refer this inquiry to the reviewer with the request that he send me his views on the matter?

WILLARD J. STONE, M.D., Pasadena, Calif.

ANSWER.—Adequate presentations of the etiology and pathogenesis of hypertensive disease are to be found in several of the recent American monographs on the subject: Stieglitz, E. J.: Arterial Hypertension, New York, Paul B. Hoeber, 1930; Fishberg, A. M.: Hypertension and Nephritis, Philadelphia, Lea & Febiger, 1933; Gager, L. T.: Hypertension, Baltimore, Williams & Wilkins Company, 1930, and Norris, G. W.; Bazett, H. C., and McMillan, T. M.: Blood Pressure: Its Clinical Applications, Philadelphia, Lea & Febiger, 1927.

Briefly outlined, the most acceptable present-day conception of the etiology of hypertensive disease includes two groups of factors: (1) constitutional factors that predispose to hypertension and (2) initiating factors that provoke hypertension. The hereditary influences in the causation of this disease are unquestionably of the greatest importance. Familial hypertension is frequent. Constitutional factors may be operative in a number of ways: by contributing to an intrinsic instability of the whole vasomotor mechanism, by creating an unstable, intense emotional temperament, or by endowing an individual with an arteriolar mechanism poor in endurance (what has been aptly called "poor rubber") and vulnerable to the many factors that may persistently irritate the delicate equilibratory mechanisms of the circulation. It is often difficult to distinguish between purely hereditary or constitutional influences and familial factors that modify the constitution. Bad dietary habits, although obviously not hereditary, may be acquired in early childhood through familial influences.

In persons thus vulnerable, the initiating etiology of hypertensive arterial disease is "anything which persistently creates prolonged arteriolar stimulation." There is no single, common, uniform or invariable etiologic factor for all cases of the disease, nor will one ever be found. There are many who insist that the etiology of hypertension is still entirely unknown because of a failure to appreciate the inevitably large multiplicity of factors involved. The term initiating factors includes such sources of arteriolar stimulation as plumbism, endocrine imbalance and dysfunction, focal and other infections, gross and continued dietary indiscretions, chronic arsenic or mercury poisonings, the intoxications of pregnancy, and other factors too numerous to mention. These sources of irritation cause the arteriolar response of hypertonia, with constriction of the vascular lumen and therefore hypertension. If the circulatory apparatus is thus stimulated for but a short time, the physiologic response disappears with cessation of the stimulation. If, however, the stimulation is prolonged, especially in persons made vulnerable through constitutional influences, the progressive changes of hypertensive disease are instituted, and from a state of arterial hypertension the disorder progresses to the arterial disease with hypertension. The mere fact that the causes are difficult of identification and are manifold and frequently superimposed does not justify the contention that hypertension is idiopathic or spontaneous, as implied by the term "essential hypertension."

The pathogenesis of the disease is at present fairly well defined. Continuous hypertonia of the arterioles causes hypertrophy of the medial musculature, as convincingly demonstrated by Keith, Wagner and Kernohan (*Arch. Int. Med.*

41:141 [Feb.] 1928) and others. This hypertrophy creates a state of increased sensitivity to stimulation: the arterioles react in an exaggerated fashion to many minor stimuli. With long continued fatigue from continuous hypertonia, exhaustion inevitably follows. As certain smooth muscle cells become exhausted and necrosed, their place is taken by collagenic connective tissue. Thus there is a gradual but persistent evolution of the sclerosing process. It must be reemphasized that the sclerotic changes in the arterioles are the result rather than the primary cause of the hypertension.

TREATMENT OF VARICOSE ULCERS

To the Editor:—Will you please describe the best local treatment for varicose ulcers? Please omit name. M.D., Pennsylvania.

ANSWER.—Assuming that the leg ulcer in question is truly a varicose ulcer and not a traumatic, thrombophlebitic, syphilitic or trophic lesion, the first step toward a rational treatment is to ascertain the condition of the varicose veins that are responsible for the chronic skin defect. If the deep veins are patent and if the superficial veins do not exhibit any signs or symptoms of a latent or manifest infection, a complete obliteration of the dilated saphenous system is desirable by means of injections of sodium morrhuate or potassium oleate, thereby eliminating back pressure, venous stasis and interference with blood flow through the capillary bed. It may be necessary to do a preliminary high saphenous ligation at the saphenofemoral junction, should the long saphenous vein show valvular incompetence in the thigh. The elimination of the actual cause is the most important factor in bringing about a permanent cure of the ulcer. Should the ulcer, however, be acutely inflamed, exhibiting a massive secretion and a phlegmonous wall, a few days of absolute rest in bed, elevation and hot boric acid dressings should precede any other treatment.

Locally the ulcer requires an even, elastic, snugly fitting support, obtained by Unna's paste boot or an elastic adhesive tape, which is evenly and tightly applied from the toes to the knee. A soft marine or rubber sponge placed above the ulcer site is a soft cushion over a tender area and absorbs some of the secretion. Directly over the ulcer one may place a flat pad of gauze dipped into Unna's paste (zinc oxide, 100 Gm.; gelatin, 100 Gm.; glycerin, 100 cc.; water, 200 cc.). If the adhesive dressing is used a mildly mentholated zinc oxide paste can be substituted.

Should the ulcer fail to heal under such management, one must consider (1) a disturbance of arterial circulation, evidenced by absent or diminished pulses, drop in skin temperature, dependent rubor and pallor on elevation; (2) the possibility of a nonvaricose ulcer, which may be present with coexisting but incidental veins and, (3) an extensive induration around the ulcer, which interferes with the blood supply, or a large-sized defect, which is not apt to heal spontaneously. Such indurated ulcers may be softened up by injecting rather large doses of 0.5 per cent procaine hydrochloride solution under the base, which procedure may be repeated a few times and is a simple substitute for the undercutting of ulcers. If the defect is too large, small seed grafts, placed under the granulations with the blunt end of a Hagedorn needle, will quickly diminish the uncovered area and serve as centers of epithelization. Thiersch grafts usually fail in this location.

When the ulcer is healed, the further objects of treatment must be to prevent recurrence and to soften up the indurated area. Both are usually accomplished by prolonged (from two to three months) applications of an elastic support, again preferably the Unna paste boot. Periphlebitic indurations may yield to small very cautiously applied doses of x-rays.

CELLULITIS OF SCALP AND OSTEOMYELITIS OF THE SKULL

To the Editor:—Will you please send me information as to the following: Diagnosis, including differential diagnosis, of cellulitis of the scalp, subaponeurotic abscess, and subperiosteal abscess of the scalp. Treatment and management for these conditions. Information concerning osteomyelitis of the skull, resulting from abscess of the scalp, especially as to how long a period is required for its development.

WILLIAM O. MCLANE, M.D., Jackson, Minn.

ANSWER.—Cellulitis and erysipelas are common on the scalp and have the same characteristics as elsewhere. There is usually a brawny edema of the skin and there may be great edema of the eyelids and face. Usually wet dressings are used until pus forms.

A subaponeurotic abscess is usually quite serious. Here the pus spreads widely and may point in the neighborhood of the eyebrow, the temperal crest, the zygoma or the occiput. It is usually associated with infected wounds or disease of the cranial bones. One or more incisions should be made in the regions where the pus appears to be pointing, with avoidance of injury to nerves and blood vessels.

A subpericranial abscess is nearly always associated with injury or disease of the cranial bones. It is limited to the bone affected, but there may not be necrosis of the bone. Prompt incision should be made. In case of specific streptococcic infection, serum may be used as in erysipelas.

Abscess or infection may be in contact with the bone for some time without necrosis, but early incision should be made to avoid osteomyelitis. The time varies as well as the virulence of the infection. The staphylococcus is the most common organism present in both regional and metastatic infections. In the treatment, osteomyelitis should be treated as if in the long bones; that is, adequate drainage, removal of dead bone, cleansing of the wound and wide drainage.

In the differential diagnosis, several conditions should be considered. Superior longitudinal sinus thrombosis may produce edema and congestion of the scalp. There may be cortical anesthesia, ankle clonus and increased knee jerks, with local tenderness or even small abscesses.

Extradural abscess or local leptomeningitis may be associated with a hard, puffy, tender, local swelling known as "Pott's puffy tumor" over the scalp at the site of the abscess, the result of edema. Focal symptoms may be present.

A hematoma may be present, above the aponeurosis, beneath it, or under the pericranium. Hematomas are of significance only in that they may be the result of grave injury to the skull and brain underneath.

Cystic and solid tumors may occur. Sebaceous cysts are common and, when they ulcerate, are called Cock's peculiar tumors.

Dermoid cysts occur near the anterior or posterior fontanels, at the root of the nose near the occiput, at either angle of the orbit, near the ear, or in the temporal region. They are often closely attached to the bone.

Simple serous cysts or meningoceles are seen near the sutures of the skull.

Aneurysms are easily diagnosed by the evidence of their vascular nature.

Nevi and adenomas are not uncommon on the scalp.

A cephalhematocele is a rare tumor formed of cavernous venous spaces in the scalp communicating through the bone with the superior longitudinal sinus.

Papillomas may resemble a horn or wart.

Lipomas are rare on the scalp.

Plexiform neuroma may form a pendulous growth.

Sarcoma of the scalp usually extends from the bone underneath.

Epithelioma may arise, from a wart, a scar or an ulcerated sebaceous cyst.

Pneumatocele may arise from the sinuses after injury.

Chronic infections from gummatous osteomyelitis, tuberculosis or actinomycosis together with many other conditions may be diagnosed from biopsy or laboratory tests together with a history and careful general examination.

DENTAL DECAY IN A CHILD

To the Editor:—I have a patient, a girl 10 years of age, who has lost three permanent molars within the last six months because of crumbling followed by decay. She appears to be a normal, healthy child and her only visible abnormality is that she is about 20 pounds (9 Kg.) overweight, weighing about 88 pounds (40 Kg.). She is a member of one of the better families and has a nourishing diet and takes excellent care of her teeth. I have thought of a lack of vitamins and have given her various cod liver oil and haliver oil preparations. I also am trying to reduce her weight to normal by a simple reduction in diet. Any advice you can give me to arrest the brittleness and crumbling of this child's teeth will be greatly appreciated.

F. CLYDE BEDSAUL, M.D., Floyd, Va.

ANSWER.—Brittleness and crumbling followed by decay of the molars of a 10 year old child can be interpreted only as a type of decay beginning in deep pits and fissures of the enamel of the occlusal (chewing) surfaces of the teeth. This form of decay usually penetrates the enamel through a small opening and spreads rapidly through the dentin, undermining the enamel crown and causing it to become brittle and to crumble. Dentin containing many interglobular spaces, undercalcified zones, is considered to be associated with rickets, a disease that is likely to occur at the same time as the development and calcification of the first permanent molars. After the teeth are fully formed and erupted, little can be done to change their character or to harden the enamel or improve the quality of the dentin. Vitamin D administered at the time of the formation of the teeth affects the process of calcification favorably but appears to have little or no effect in this sense after eruption. Even

though it is stated that this girl has a nourishing diet, the fact that she is overweight and susceptible to tooth decay warrants a careful investigation of her dietary habits. In spite of frequent statements to the contrary, as far as known there is no specific dietary deficiency involved. Yet caries is much more likely to be found in children whose carbohydrate intake is high, especially the highly refined forms of sugars and starches, and whose protein, mineral and vitamin consumption is low. Proper management of such cases has to do not only with increasing the intake of the preceding and rigidly limiting carbohydrates to energy requirements but also prompt recognition and immediate treatment of the initial lesions of caries by the dentist. Some foods that require vigorous chewing should be eaten at each meal, and each meal should be concluded with uncooked fruit or fruit cooked with a minimum amount of sugar, or some similar dessert instead of cake and highly sweetened pastry. Candy and food between meals should be prohibited. It would be advisable to have her dentist fill all deep pits and fissures in the molars as soon as these teeth are fully erupted (Hyatt's method). In children susceptible to dental decay, wholly successful management is difficult of attainment.

CHRONIC GLOSSITIS

To the Editor:—I have a patient who has a sore tongue; also the surrounding mucous membrane of the mouth is sore. It is red. The tongue is clear of a membrane and is not coated. The patient had a very severe grade of secondary anemia, which is now improving under treatment. Will you kindly state the possible etiology and treatment for this condition?

J. S. DUNCAN, M.D., Gary, Ind.

ANSWER.—The description of a chronic red tongue and redness of the adjacent oral mucous membrane, with great soreness, is suggestive of a chronic disease of the tongue known as Moeller's glossitis. The best article on this is by F. G. Harris (*J. Cutan. Dis.* **33**:742, 1915). The etiology in most cases is obscure. Most of Moeller's cases were in persons having intestinal worms; but Harris's cases and those reported by others did not present such infestation. Engmann and Weiss (*Arch. Dermat. & Syph.* **1**:119 [Feb.] 1920) reported a case in which endamebas were found in tooth abscesses. On extraction of the teeth and treatment with emetine, the patient recovered.

Zinnser (Handbuch für Dermatologie und Geschlechtskrankheiten **14**:101) states that all cases of Moeller's glossitis are due to pernicious anemia. While his statement finds little support in the case histories of Moeller's glossitis, his advice, that in all such cases the blood should be carefully studied and watched for a long time, is certainly good.

The patient's own experience as to diet may be safely followed, avoiding foods that cause pain, except in severe cases, in which all foods cause pain. Attempts to anesthetize the tongue before meals may then be made, using phenol in glycerin 5 per cent or stronger or orthoform powder on the tender areas, rinsed off before eating. Sharp tooth corners should be smoothed down. All foods should be soft.

Roentgen treatments are said to relieve the pain temporarily. They should be kept below the erythema dose. Use of ultraviolet radiation is also credited with temporary relief of pain.

Hutter, Middleton and Steenbock found that rats (Vitamin B Deficiency and the Atrophic Tongue, THE JOURNAL, Oct. 21, 1933, p. 1305) after about thirty-nine days on a diet deficient in vitamin B_2 lost the normally very sharp papillae of the tongue, leaving a smooth dorsum much like that of the atrophic tongue of man. When vitamin B_2 was supplied, the papillae reappeared and the tongue appeared normal. They therefore suspected that vitamin B_2 deficiency might have some relation to the atrophic tongue. Their effort to cure such tongues by diets rich in vitamin B_2, however, were not successful enough to be convincing. Tomato juice or yeast by mouth and liver extract intramuscularly could be tried in the case under discussion, if this has not already been done.

LEMON WITH FISH AND CHEESE WITH PIE

To the Editor:—1. Can you enlighten me through the columns of THE JOURNAL as to the origin and the significance, if any, of the custom of serving a slice of lemon with fish. I have wondered whether it originated or was connected in some way with the issuance of fresh lime juice to British seamen after its discovery as a preventive of scurvy. 2. What was the origin of serving cheese with apple pie? Please omit name.

M.D., California.

ANSWER.—1. The custom of serving lemon with fish probably originated in Italy and other southern countries where lemons grow abundantly. All the natives of these countries use lemon juice on almost every food they eat. They put it on most of their vegetables, on shell fish and on fish and fowl. This is probably the most logical place where this custom may have originated.

2. The custom of eating cheese with pie may have originated with the Italians eating home-made cheese with apples and pears. Then they started using such cheese as either Parmesan, ungrated, in whole pieces, or Bel Paese with raw fruit. The British took up the custom of using raw fruits instead of stewed fruits in their deep dish pies and with it served a piece of cheese, as the Italians had done. The custom was probably brought to the United States, particularly the New England states, where the cheese used was the local store cheese or American cheese.

THROMBOPHLEBITIS IN INJECTION OF VARICOSE VEINS

To the Editor:—A woman has a thrombophlebitis in one of the varicosities of the leg. How long should one wait before using the injection method of treating the other varicose veins? Would it be correct to go ahead on the well leg while waiting? Kindly describe the technic of determining the patency of the deep veins. Please omit name.

M.D., New Jersey.

ANSWER.—The correspondent does not state whether the patient has a deep or a superficial thrombophlebitis. Assuming that the infection is only in the previously dilated saphenous vein, it is wise to wait until all signs of local inflammation, such as redness, hardening of the wall of the vein, and increased skin temperature as compared with the unaffected side, have disappeared. It might also be advisable to look for the source of infection in the tonsils, teeth and cervix. There is no arbitrary period for starting the injections, but it takes usually from six weeks to three months before the injections may be safely given. In such a case it is wise to use small provocative doses of the sclerosing solution, not more than a few drops at a time, and observe the inflammatory reaction following such a minute injection. If the veins of the other leg seem entirely free from infection, one can cautiously proceed with treatment on that side. However, it must be borne in mind that injections on the unaffected side may light up the subsiding process on the affected side.

The patency of the deep veins is determined by the test of Perthes. Following the constriction of the saphenous trunk by a towel, the patient is asked to flex and extend the knee vigorously ten times. During the exercise, blood is sucked into the deep veins and the superficial varicosities collapse. When the pressure of the towel is released, the filling from above demonstrates the amount of blood expressed into the deep veins. If the deep veins are not patent or if there is a deep venous valvular insufficiency, no diminution of the superficial veins will take place.

MULTIPLE MISCARRIAGES

To the Editor:—Will you please advise me regarding the proper procedure in the following case: A normal appearing woman, aged 26, started menstruation at 13 years. The normal cycle continued until six years ago; then she would menstruate one week, pause one week, then menstruate again. With the onset of the irregular cycle, dysmenorrhea occurred. She has been married five years and has been pregnant twice, miscarrying at three months. The basal metabolic rate is 16+. Her sister has been pregnant twice with hyperemesis gravidarum, and in spite of late hospitalization in both instances no procedures were successful except emptying of the uterus. How can I arrest another miscarriage? Both women are anxious to be mothers. Please do not use my name.

M.D., Illinois.

ANSWER.—The onset of dysmenorrhea after a few years of painless menstrual periods may have its origin chiefly in the psyche or in an adenomyosis of the uterus. Either cause may be difficult to determine. The mental reaction of the patient may be determined after a number of conversations. Adenomyosis or endometriosis of the uterus can be diagnosed with certainty only by means of an examination of the entire uterus. Microscopic examination of curetted material does not often help. However, clinically a diagnosis may often be made by the presence of atypical bleeding, severe dysmenorrhea that appears after a long period of painless periods, and a sign recently pointed out by Halban; namely, a marked cyclic enlargement of the uterus in the premenstrual phase of the period. The uterus diminishes in size immediately after the menstrual flow ceases.

Repeated miscarriages are often difficult to prevent. Occasionally careful macroscopic and microscopic examination of the expelled products of conception throws some light on the cause of the miscarriages. Recent work has shown that estrogenic substance stimulates uterine activity and that its antagonist, the hormone of the corpus luteum, inhibits the muscular activity of the uterus. Hence, estrogenic substance

is advocated not only for cases of dysmenorrhea due to spasmodic contractions of the uterus but also for cases of threatened abortion and habitual abortion when no apparent cause can be detected. A prescription that has seemed to help some women is the following:

		Gm. or Cc.	
℞	Red mercuric iodide		
	Arsenic trioxide	āā 0.065	gr. i
	Ferrous carbonate	12	ʒ iii

Mix and make sixty capsules.
Sig.: One capsule three times a day.

Patients with hyperemesis gravidarum should be placed in a hospital early in the course of the illness and treated energetically along the customary lines. When hypodermoclysis, proctoclysis, sedatives and other drugs fail to stop the vomiting, duodenal feeding usually accomplishes the desired result.

POLYNEURITIS IN MONOTYPE CASTING

To the Editor:—I have a patient who for the last five years has been employed as a monotype operator. Six months ago severe neuritic pains suddenly developed in both arms and persisted for weeks. This condition was followed by muscular atrophy. I first saw him last week. He gives a history of having an exfoliation of the skin over both hands a few weeks after the onset. What can be done to determine the cause of the polyneuritis? Can you refer me to any literature concerning polyneuritis as an occupational disease in monotype work? Please omit name and address.

M.D., Illinois.

Answer.—There are two processes in monotype casting. The first is the striking off of symbols on a keyboard, which work is similar to typewriting; the second is the use of these strips of paper produced by the keyboard machine, which are fed into the caster and serve as molds for casting the type. In some machines the two operations are combined.

There is no hazard in the first part of the process beyond the possible overuse of the hands and arms in typing. In the second part of the process there is a distinct lead hazard, although this is not a severe one. However, one would expect the form of neuritis to be an extensor paralysis resulting in wrist drop if lead was the important factor.

In order to determine the possible toxic effect of lead in the case outlined, the usual tests for lead poisoning should be tried:

(*a*) Examination of the blood for stippling, polychromatophilia and secondary anemia.

(*b*) Examination of the urine for lead to determine whether or not there is more than 0.05 mg. of lead per liter, and whether hematoporphyrinuria is present.

(*c*) Examination of the patient for other symptoms of lead poisoning, such as the lead line of the gums, constipation, abdominal pain, wrist drop and foot drop.

The dangers of lead poisoning in monotype casting are described in Industrial Poisons in the United States by Dr. Alice Hamilton, in which there is also a discussion of lead poisoning. More recent information on lead poisoning appears in Industrial Toxicology by the same author, published by Harper & Brothers in 1934, which contains an excellent bibliography.

CHRONIC DUODENITIS

To the Editor:—I have under my care at the present time a patient who has had a gastric ulcer during the past six years. At the present time his symptoms are the same as those of a bad ulcer case. Complete examination of the stomach, intestine and gallbladder has shown that the ulcer area is healed and that all the trouble lies in the duodenum, the diagnosis by roentgenologists being "duodenitis." I find nothing in my books on the treatment of this condition. I might say in passing that the usual ulcer treatment brings absolutely no response in this patient and alleviates none of the symptoms of which he complains. Can you suggest any mode of treatment that might produce an eventual clearing up of this condition? I have been tempted to try "Synodal" and also feeding through a duodenal tube that has passed below the duodenum. What are your opinions of these ideas and their possibilities?

Avery D. Powell, M.D., Attica, Ohio.

Answer.—Alcohol, tobacco, spices and carbonated drinks should be strictly avoided in the treatment of chronic duodenitis. Elimination of foci of infection in the teeth, tonsils, paranasal sinuses, gallbladder, appendix and prostate should be attempted. Stomach secretions should be regulated with the use of alkalis if hyperacidity is present, and with dilute hydrochloric acid if a hypochlorhydia is found. Atropine is used to control spasm and irritation. Bismuth subnitrate alone or with alkali is used for its soothing effects. The instillation of silver salts or irrigation and lavage may be attempted with the duodenal tube. If symptoms persist, surgical intervention is necessary. A pyloroplasty, after the method of Judd and Nagel, may be the method of choice. Synodol is a proprietary preparation given intravenously; while the results reported have been enthusiastic, the evidence available is hardly such as to indicate extraordinary merit.

CONGENITAL EXTRA LUMBAR VERTEBRAE

To the Editor:—Please send without delay all information pertaining to congenital extra lumbar vertebrae (sixth lumbar) and especially as regards traumatism to the back when this condition is present.

Floyd G. Patterson, M.D., Du Bois, Pa.

Answer.—The occurrence of six lumbar vertebrae is a fairly common condition.

Whether the sixth lumbar vertebra predisposes the back to additional trauma is controversial. The condition is usually found incidentally (or accidentally); that is, when films are made of the spine incident to the study of nearby tissues, and roentgenographic studies follow an accident to the lumbar area.

In a discussion of numerical variations of the spine, Steindler (Diseases and Deformities of the Spine and Thorax, St. Louis, C. V. Mosby Company, 1929) states that in the lumbosacral section one finds a caudal assimilation consisting in sacralization of the fifth lumbar in various degrees, ranging from a large, bifid transverse process to complete sacralization of the fifth lumbar segment; the cranial assimilation consists in lumbarization of the first sacral vertebra whereby the number of lumbar vertebrae is increased to six, while that of the sacral segment is decreased to four.

Bohart reported approximately 44 per cent of anomalies and anatomic variations in 1,000 symptomless spines.

In the routine examination of 931 symptomless spines of industrial employees, Cushway and Maier found twenty-five instances of six lumbar vertebrae.

Gadow (Evolution of the Vertebral Column, Cambridge University Press, 1933) states that the rhinoceros has four lumbar vertebrae, the zebra six lumbar vertebrae and Equus Prezewalski six lumbar vertebrae.

PILONIDAL CYST

To the Editor:—Can you tell me whether there is any preparation that will close in a pilonidal cyst? I have used Beck's paste with fair results but have been unable to close it entirely. This patient absolutely refuses to be operated on. Please omit name.

M.D., New York.

Answer.—It is probable that some sclerosing agent might obliterate the pilonidal cysts or sinuses, but no reports of the successful use of any have been seen. The lining must be completely destroyed or removed.

SYPHILIS LATE IN PREGNANCY

To the Editor:—The patient is five months pregnant and has a 4 plus Wassermann reaction. When she was seen five years ago, with a secondary eruption, she received one course of neoarsphenamine and mercury. She is unusually sensitive to neoarsphenamine. A recent attempt, on two occasions, to give even small doses of this drug caused marked vomiting for twenty-four hours. Would you consider intramuscular injections of bismuth compounds bi-weekly for the remainder of the pregnancy sufficient therapy to produce a normal fetus? If not, what additional therapy is recommended in such a case? I would appreciate your advice. Please omit name.

M.D., New York.

Answer.—Intramuscular injections of bismuth compounds for the remainder of the pregnancy will most likely not be sufficient to guarantee the birth of a healthy baby. The placenta at the present stage of gestation is fully developed and it will require neoarsphenamine to destroy the spirochetes in this organ. While bismuth compounds will have a deleterious effect on the spirochetes in the placenta, neoarsphenamine is much more potent in destroying them. In spite of the patient's sensitiveness, neoarsphenamine should be administered. Before each injection of arsphenamine it is advisable to give calcium gluconate intramuscularly and atropine. The dose of arsphenamine should be 0.15 Gm. and should be given slowly with the patient lying down. The patient should remain lying down for one or two hours after each injection. It is best to alternate a few injections of arsphenamine with a few injections of a bismuth compound and continue this to term.

HISTAMINE IN SEASONAL URTICARIA

To the Editor:—I should like to know something about the use of histamine injections in the treatment of seasonal summer urticaria, lasting about two months, a number of skin test reactions being positive.

Cornell G. Gray, M.D., Hanover, Pa.

Answer.—Search of the literature dating back to the time when histamine began to play a part in the discussions of allergic conditions has failed to reveal any article dealing with the use of histamine injections in the treatment of seasonal

urticaria or any other form of urticaria. There is, however, some work on the treatment of bronchial asthma by injections of histamine.

In this article, by Ramirez, the injections were begun with small doses and increased much as pollen extracts are increased, although in each case there came a point at which constitutional reactions characteristic of histamine poisoning resulted. These symptoms consist of prostration, perspiration and other less well marked changes and Ramirez decided that the treatment of asthma by histamine injections was not successful.

Histamine has also been used by Skouge (Percutaneous Histamine Therapy, *Nord. med. tidskr.* **6**:1252 [Oct. 21] 1933) in the treatment of various forms of rheumatism, myalgia, neuralgia, varicose ulcers, furuncles and arsphenamine infiltrations, with complete relief from pain in about 80 per cent of the cases; the results here were sometimes temporary.

IRIDOTASIS—IRIDENCLEISIS

To the Editor:—What is the origin of the terms iridencleisis and iridotasis? It may be well understood as to what these operations on the iris are, but very few know why these terms are selected and no dictionary or work on ophthalmology gives the derivation of them.

H. W. WOODRUFF, M.D., Joliet, Ill.

ANSWER.—Iridotasis is evidently a simplification or corruption of "iridodesis," the name of the old operation for attaching a portion of the iris into an opening in the cornea. The word is derived from the Latin noun *irido* plus the Greek δέσις meaning a binding.

The origin of iridencleisis is not perfectly clear. It is probably derived from the Latin noun *irido* or *iriden* (combining form) and the Greek κλειστός meaning "closed," "enclosed" or "included." The combination denotes the "iris enclosed or included in the wound."

CHRONIC CYSTIC MASTITIS

To the Editor:—A woman, aged 39, married, with two children, whose family and past histories are negative, had an enlargement of one breast five months ago, which became painful. The pain shortly after subsided and disappeared. At present the breast is soft. The size and appearance of the nipple are the same as of the other breast. There are no dimples or any other signs. The enlargement, however, though not increasing, still persists. Her general health is good. Please advise diagnosis and treatment, if any. The woman is neither pregnant nor nursing. Please omit name.

M.D., New York.

ANSWER.—Such an enlargement of the breast may be similar to chronic cystic mastitis, which is now believed to be the result of a disturbance in the female hormones. Such changes in the breast may cause either hyperplasia or cystic changes in either one or both breasts. In the absence of any further changes indicative of some other condition, no treatment of the breast is indicated. Examination of the pelvic organs might be in order.

ALBUMINURIA AFTER SCARLET FEVER

To the Editor:—A boy, aged 10 years, had scarlet fever ten months ago. The attack was mild and convalescence uneventful except that he has continued to have 1+ albumin in the urine. I should like to know the prognosis as to this albuminuria and just how strict I should be as to his diet and exercise. Kindly omit name.

M.D., Texas.

ANSWER.—In the absence of blood and granular casts, the prognosis should be good. As a rule little restriction in diet is necessary for a case of this kind. The patient will frequently do well on a high protein diet. Should edema develop, a salt free diet ought to be instituted.

LOCAL ANESTHETIC FOR TONSILLECTOMY

To the Editor:—Have you any information regarding the use of nupercaine for injection for local tonsillectomy in a patient who has had agranulocytic angina? I should like to know as soon as possible if it would be safe to proceed using nupercaine. The patient is in fair physical condition—the white count is 7,200—but he has a myocarditis, which has kept him from work.

A. L. LANGHORST, M.D., Elgin, Ill.

ANSWER.—We have been able to find no unfavorable reports regarding the use of nupercaine. If the patient is otherwise in condition to be operated on, the use of this preparation for local tonsillectomy should be perfectly safe. If there is any doubt regarding its use, the employment of 1 per cent procaine hydrochloride by the nerve blocking method would be devoid of risk. The procaine solution in ampules has incorporated in it about 1:20,000 epinephrine, giving a perfect anesthesia without any edema, so that the line of cleavage may easily be found.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALASKA: Juneau, March 5. Sec., Dr. W. W. Council, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written (Group B candidates).* The examination will be held in various cities throughout the country, April 29. *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, March 23. *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Group B application lists close Feb. 23 and Group A application lists close May 10. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. *Application must be filed at least sixty days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

CALIFORNIA: *Regular.* Los Angeles, Feb. 4-7. *Reciprocity.* Los Angeles, March 13. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Feb. 9. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Regular.* Hartford, March 12-13. *Endorsement.* Hartford, March 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* March 12. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

MAINE: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* The examinations will be held in medical centers where there are five or more candidates, Feb. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEVADA: *Reciprocity.* Feb. 4. Sec., Dr. Edward E. Hamer, Carson City.

NEW HAMPSHIRE: Concord, March 14-15. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 28-31. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, March 12-13. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, March 5. Act. Sec., Dr. Ramón M. Suarez, Box 536, San Juan.

VERMONT: Burlington, Feb. 13-15. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

WISCONSIN: *Basic Science.* Madison, March 16. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Feb. 4. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Tennessee October Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Oct. 1-2, 1934. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Nineteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED Year Grad.	Number Passed
Harvard University Medical School	(1933)	1
St. Louis University School of Medicine	(1934)	1
University of Tennessee College of Medicine	(1934, 17)	17

Five physicians were licensed by endorsement from September 15 to October 25. The following schools were represented:

School	LICENSED BY ENDORSEMENT Year Grad.	Endorsement of
College of Medical Evangelists	(1929) (1930)	California, N. B. M. Ex.
Kentucky School of Medicine	(1906)	Kentucky
Woman's Medical College of Pennsylvania	(1932)	Ohio
Medical College of Virginia	(1933)	Virginia

Vermont Endorsement Report

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports 7 physicians licensed by endorsement from Aug. 6 to Oct. 9, 1934. The following schools were represented:

School	LICENSED BY ENDORSEMENT Year Grad.	Endorsement of
Johns Hopkins University School of Medicine	(1931)	N. B. M. Ex.
Tufts College Medical School	(1932)	Mass.
Long Island College of Medicine	(1933)	New York
Hahnemann Med. College and Hosp. of Philadelphia	(1931)	Penna.
Woman's Medical College of Pennsylvania	(1933)	N. B. M. Ex.
University of Vermont College of Medicine	(1933), (1934)	N. B. M. Ex.

Book Notices

The Autonomic Nervous System. By Albert Kuntz, Ph.D., M.D., Professor of Micro-Anatomy in St. Louis University School of Medicine. Second edition. Cloth. Price, $7.50. Pp. 697, with 73 illustrations. Philadelphia: Lea & Febiger, 1934.

The topics presented in this valuable book include the morphology and distribution of the autonomic nervous system; the structure of the ganglion cells; the central autonomic centers and conduction pathways; the physiology of the autonomic nervous system; the development of the autonomic nervous system; the innervation of the heart, the blood vessels, the respiratory system, the digestive tube, the biliary system, the glands, the urinary organs and the sex organs; the involuntary innervation of the eye; the autonomic innervation of skeletal muscles; the pathology of the autonomic nervous system; visceral sensitivity and referred pain; autonomic imbalance; the autonomic nervous system in disease, and the surgery of the autonomic nervous system. The author does not say for whom this book is intended, but it is clear that all who are interested in this vital subject, which assiduous laboratory and clinical research is gradually lifting from darkness into light and which is daily being correlated with banal but little understood visceral phenomena and with the unfolding panorama of diseases of the autonomic nervous system, will find in it a vast store of information arranged in orderly and available fashion. The reader may be somewhat awed by the first chapter, on the morphology and distribution of the autonomic nervous system, for here a master anatomist throws him unceremoniously and headlong off the deep end. If the reader will persevere, however, he presently launches into the body of an admirably clear and concise work. The histologic discussions particularly are beautifully illustrated and are worthy of unstinted praise. To orient oneself anew with respect to any phase of the autonomic nervous system is, to say the least, a time consuming task and requires access to a library well stocked with current periodicals. The author has succeeded commendably in culling what appears to be of greatest importance and reliability, and in turning the various facets of the subject to the reader in well balanced relationship for his inspection and deliberation. Unfortunately, many problems to which one would like to know the answers are as yet unsolved; but when this is the situation, the reader wishes to know this also. Such problems as the autonomic innervation of skeletal muscle, still hotly disputed, are presented with fairness, restraint and understanding. Various captions in the chapters are clearly indicated, the whole work is carefully indexed, and any information sought may instantly be found. A bibliography of 117 pages tells the reader where he may carry on his search should this be desired.

Diffuse Sclerosis (Encephalitis Periaxialis Diffusa). By L. Bouman, M.D., Professor of Psychiatry and Neurology, Utrecht University. Cloth. Price, $5. Pp. 160, with 64 illustrations. Bristol: John Wright & Sons, Ltd., 1934.

Diffuse sclerosis, also known as Schilder's disease and under many other names, has attracted much attention during the last twenty years, though it has been known for more than fifty years. Strümpell, for instance, mentions it even in the oldest editions of his textbook, but the pathologic basis was first emphasized clearly and properly by Schilder. In diffuse sclerosis a vast destruction of the subcortical white substance, mainly of the occipital and temporal lobes, takes place, producing a clinical picture that can sometimes be diagnosed at the bedside. Blindness, and deafness setting in acutely or subacutely, combined with speech, motor and often psychic disturbances are the frequent symptoms and signs. In many cases, however, neither the clinical nor the histopathologic picture is characteristic enough to enable one to make a correct diagnosis. Nor is it always possible to make a definite diagnosis post mortem, as the main histopathologic feature, demyelinization (loss of myelin) in the white substance of the central nervous system, occurs also in multiple sclerosis, postvaccinal encephalitis, a number of hereditary and familial nervous diseases, neurosyphilis and many other conditions. The foregoing features are all carefully discussed by Bouman on the basis of his personal experience and the study of the literature. Though the review is down to the present and the subject is covered fully, no definite answer is given to such problems as whether diffuse sclerosis possesses specific clinical or pathologic features and whether it can safely be differentiated from similar conditions. As a matter of fact, the part of the monograph dealing with the microscopic changes of diffuse sclerosis is obscure. It is largely made up of quotations of various opinions, mostly confusing and misleading. The book would be much more valuable if these unnecessary and obscure histopathologic discussions (pp. 124-142) had been omitted. Another distracting feature is the abundance of quotations in original German and French and the frequent use of German words whenever the author had difficulty in finding a suitable equivalent in English. The book is beautifully printed and the illustrations are for the most part clear, but the price is decidedly out of proportion to the size and the general merits of the monograph.

Developmental Anatomy: A Text-Book and Laboratory Manual of Embryology. By Leslie Brainerd Arey, Robert Laughlin Rea Professor of Anatomy, Northwestern University. Third edition. Cloth. Price, $6.50. Pp. 503, with 547 illustrations. Philadelphia & London: W. B. Saunders Company, 1934.

With all the changes of recent editions, the main feature of this book is the presentation of developmental processes from a three dimensional point of view. This can be referred back to the extensive dissections of embryos by C. W. Prentiss, on whose book this one was originally based. The value of the method stands out particularly in the chapters on the coelom, the mesenteries and the heart. The original emphasis on points of practical value to the medical student and practitioner is maintained with a corresponding stress on abnormal development. The laboratory manual remains substantially as it was; the sections on general embryology and organogenesis have been thoroughly revised and some new figures added. The author's method of documenting his statements by references to the original literature is helpful to the teachers and the very few students (eheu!) who are interested in the evidence on which the general conclusions are based. The account of the physiology of the female reproductive system is judicial, although the task is a difficult one because of the rapid accumulation of data in recent years and the numerous conflicts of opinion on fundamental questions. Fetal age and the duration of pregnancy are given the space they deserve. The illustrations are the most conservative feature of any textbook, for it is expensive to change them. In the chapters on the development of the external form and the brain, the retention of various old illustrations is to be regretted. The latter chapter suffers more than any other from a lack of first-hand knowledge of the material. The chief practical value of a study of brain development at present is the establishment of landmarks for reference in the adult brain. This has not received adequate emphasis, nor has the value of morphogenesis in unraveling the intricate relations in the forebrain been fully exploited. There is little else to criticize. The illustrations of sex differences in the external genitalia of young embryos are misleading, since they represent exceptional conditions that have proved to be inadequate for diagnosis in some cases at least. In figure 195 it is hardly apparent that in early stages the mesonephros extends through most of the thoracic region and the pronephros is almost entirely confined to cervical levels. Typographic errors are rare and never serious. It is gratifying to see that the price has not been increased despite the enlargement of the book.

Technique du traitement des fractures. Par Lorenz Böhler, directeur de l'Hôpital des accidentés, Vienne. Traduction d'après la quatrième édition. Par M. Boppe, chirurgien des hôpitaux de Paris. Préface du Professeur Hartmann. Cloth. Price, 160 francs. Pp. 652, with 1,046 illustrations. Paris: Masson & Cie, 1934.

This is a translation of the fourth edition of Böhler's book, which originally appeared in German. The mechanics of fractures and the displacement of the fragments are illustrated in a way that even the beginner can understand. The author illustrates to a high degree the value of skeletal traction, in the popularization of which method he has occupied so important a place. He describes in detail the method of local anesthesia in the treatment of fractures and dislocations, a method that owes its popularity to his pioneer work. It is noteworthy that, in the treatment of fracture of the neck of the femur by

the Whitman abduction method, the assistant is obtaining internal rotation of the leg by turning the foot and ankle. This is a mistake, because the internal rotation should be done above the knee in order to spare the delicate structures of the knee from the trauma due to the twist and rotation that is necessary when internal rotation is accomplished by turning the foot and ankle. Illustrations 143 and 144 on the circulation of the carpal scaphoid are highly instructive. The Beck method of perforations in the treatment of pseudarthrosis is described and illustrated. The English reading surgeon will be interested in what this edition has to offer over the original German and small English translation, which has been off the press for about four years. A careful comparison discloses that the French edition has nothing to offer in addition. Again Steinberg, the translator of the first German edition, is to be highly complimented. While the English edition has 234 illustrations and the French edition 1,046, it does not seem worth the difference in price.

Maternal Mortality in Philadelphia, 1931-1933. Reports of Committee on Maternal Welfare. Philip F. Williams, M.D., Chairman. Paper. Price, $1. Pp. 143, with illustrations. Philadelphia: Philadelphia County Medical Society, 1934.

This is packed full of valuable information regarding maternal mortality in a large city. A proper review of it would require many pages. The study was conducted on the lines pursued by the committee of the Academy of Medicine of New York in 1933, thus making the two results comparable to some extent. As always with statistical studies it is impossible to find a common ground, common definitions and complete (if not biased) original entries. It is stated that, while the birth rate in Philadelphia during the last thirteen years has dropped from 41,343 to 30,753, the maternal death rate has had no reduction, yet a table reads that the death rate was 6.3 in 1932 and 4.4 in 1933 per thousand total births. There has been a decrease in deaths from puerperal infection but the gain is made up by loss of mothers from other causes.

Seven hundred and seventeen deaths were studied as of 1931, 1932 and 1933. Septic abortion heads the list with 22.6 per cent, septicemia showing a percentage of 16.6, eclamptic states 11.9 and hyperemesis 3.3. The figures compared with those issued by the state of Pennsylvania again show that urban mortality rates are nearly double those of the rural districts.

The difficulty in arriving at just conclusions is shown by the joint coding of the causes of death, e. g., in reporting an influenza death during pregnancy, and this point is emphasized in the chapter devoted to comparison with mortality rates in foreign countries. "Until a uniform procedure for preference in joint causes found in maternal deaths is adopted, any comparisons between countries will be useless and futile."

Hospital deliveries showed 72 per cent spontaneous and 28 per cent operative, and the mortality of all the hospitals was 9.1 per thousand.

The incidence of cesarean section in Philadelphia hospitals varied from 0.3 to 11.1 per cent, the largest maternity service showing 4.8 and the average being 2.6 per cent. There were (in the three years) 1,775 cesarean sections, with 98 deaths, or 5.52 per cent. Two "lost" cesarean deaths were discovered after the tables were made. The mortality of classic cesarean section was 74.5 per cent of the total ninety-eight deaths and 14.3 per cent for the low cervical, again proving beyond, now beyond justifiable, doubt the immense superiority of the low cervical cesarean operation.

The figures show an increase of operative deliveries and at the same time an increase of fetal injuries and deaths of 62 per cent in ten years. In Philadelphia, 73.5 per cent of all live births occurred in hospitals.

It was impossible to compare the results of home delivery with those of institutional, and one does not know what significance to attach to the figures. Of ninety-eight septic deaths seventy-seven are accredited to intrahospital infection, and of the seventy-seven patients sixty-six were "planned admission" cases.

A careful analysis of the deaths is made from many angles, and a good discussion of each factor is given, also recommendations for prevention. One might disagree with some of the opinions regarding preventability of these deaths. It is hard to judge "what should have been."

This report is a valuable addition to our obstetric statistics and will help all teachers to teach and do better obstetrics, and hospitals to improve their service.

Diothérapie chirurgicale anti-infectieuse. Ses procédés: Vaccins, sérums, thérapeutique par le choc. Immunisa-transfusion, leucocytothérapie, bactériophagothérapie. Ses applications, ses limites. Par J. P. Lamare et Maurice Larget, chirurgiens de l'Hôpital de St. Germain-en-Laye. Paper. Price, 30 francs. Pp. 264. Paris: Librairie Louis Arnette, 1934.

This readable work is divided into two sections. In the first is a concise presentation of most of the well established ideas on vaccines, serum, blood transfusions, therapy of shock, nonspecific leukocytic stimulation, and bacteriophage. Particularly helpful are the suggestions and contraindications for the use of serums and vaccines. The second portion of the book deals more with the specific diseases in which one or more of the foregoing therapeutic procedures is indicated. The portion on osteomyelitis and puerperal sepsis is quite extensive, but vaccine therapy in ulcerative colitis is not considered nor is the subject of preoperative preparation dealt with to any extent. It is probable that the authors feel that these two subjects are not sufficiently established to warrant more emphasis. No bibliography is included, although generous and frequent mention is made of other workers in this field. The book appears to be one to which one may turn for the present-day conception of these subjects but with no new or original additions. It is primarily a reference book for the clinician, not the investigator.

Osteomyelitis: Its Pathogenesis, Symptomatology and Treatment. By Abraham O. Wilensky, A.B., M.D., F.A.C.S., Attending Surgeon to the Bronx Hospital and Dispensary, New York. Cloth. Price, $9. Pp. 454, with 104 illustrations. New York: Macmillan Company, 1934.

The author bases his book on the conception that the pathologic changes which occur in cases of osteomyelitis are of vascular origin and are to a large degree mechanistically determined. He has delved into the field of bacterial infection, neurology, otology, rhinology and the history of medicine. He has taken much from his writings that have appeared in many periodicals and from numerous other sources. The historical development of knowledge concerning osteomyelitis is an interesting chapter. The author likes the Orr treatment but does not like the use of maggots. It is surprising that the work of Starr, a pioneer whose work forms a milestone in the pathogenesis and rational early treatment of osteomyelitis, has been entirely neglected. His name does not even appear in the index. Nor does the name of Platt appear. The work of Dean Lewis appears in four places, which are purely statistical. The excellent work of the Englishman Kennon is entirely neglected. Lincoln, Neb., would resent the statement on page 226, where Orr is credited to Kansas City.

Krankheiten der Leber und der Gallenwege: Eine Darstellung für die Praxis. Von Professor Dr. F. Rosenthal. Fachbücher für Ärzte, Band XVI. Herausgegeben von der Schriftleitung der klinischen Wochenschrift. Cloth. Price, 18.80 marks. Pp. 216, with 6 illustrations. Berlin: Julius Springer, 1934.

This is an excellent little treatise on diseases of the liver and the bile tracts. It is replete with discussions on the newer phases of physiology of the liver and their clinical application as well as with a fairly thorough description of pathologic anatomy, clinical considerations and methods of treatment. The technic of the commoner and more useful laboratory procedures, as the tests of liver function, are described in sufficient detail. Discussions of differential diagnosis, when necessary, are not lacking. Especially creditable are the sections devoted to the cirrhoses of the liver. Under the caption of diseases of the extrahepatic biliary tract the new subject of biliary dyskinesia and the causes, symptoms and treatment are described quite well. One would wish that more space were given to the acute disorders of the gallbladder and that mention of the effect of obstruction of the common duct on the pancreas were made. The bibliography is meager, although many more authors are mentioned in the text without their names appearing in the list. With the exception of the work of Mann and Magath and of Graham and Cole, English and American authors are quoted rather meagerly. However, it is quite an acceptable piece of work of its size.

Medicolegal

Paternity: Blood Grouping Tests to Determine Paternity.—The plaintiff sued the defendant for damages for a carnal assault, alleged to have been committed by the defendant, as a result of which the plaintiff gave birth to a child. The defendant, denying all of the material allegations of the complaint, requested the court to require the plaintiff and her child to submit to a physical examination pursuant to the provisions of section 306 of the Civil Practice Act of New York, and, in connection therewith, to permit the taking of samples of blood of the plaintiff and her child for examination and analysis. Section 306, Civil Practice Act of New York, provides in part as follows:

> In an action to recover damages for personal injuries, if the defendant shall present to the court satisfactory evidence that he is ignorant of the nature and extent of the injuries complained of, the court, by order, shall direct that the plaintiff submit to a physical examination by one or more physicians or surgeons to be designated by the court or judge. . . .

The examination sought, said the Supreme Court of New York, Kings County, is clearly relevant to the issue of paternity. The question to be determined is whether the Landsteiner blood grouping test, which is here sought to be applied, is generally recognized as sufficiently trustworthy for use as an aid in ascertaining facts in a legal proceeding. If so, the court said, then by general common law principles the proposed examination should be permitted. The law has at all times, said the court, even though on occasions haltingly, appreciated the need of keeping abreast of achievements in fields other than its own. It has thus recognized as trustworthy, and has made use of, numerous scientific advantages. The Binet-Simon Intelligence Test was used during the course of a Connecticut trial. *State* v. *Wade*, 96 Conn. 238, 113 A. 458. Experts are permitted to testify that a given specimen of blood is human and evidence of fingerprints is admitted to prove identity. *People* v. *Roach*, 215 N. Y. 592, 109 N. E. 618. With respect to the present case, the court said, research of medical journals and foreign law reports discloses that many thousands of similar cases have been before the courts of European nations. The evidence submitted on the hearing of this case, continued the court, and a reference to scientific works cited in support of the application, lead to a conclusion in keeping with that of the Supreme Italian Court of Cassation (Lattes, Individuality of the Blood, p. 254), where the following appears:

> As regards the reliability of the results obtained by this method the latest studies and investigations show that though the determination of the blood groups affords no positive evidence for a declaration of filiation in a given case, it does, on the other hand, furnish incontrovertible evidence for the exclusion of this relationship when the child's blood group does not agree, according to a definite scheme, with that of the supposed father.

Naturally, continued the court, the application of scientific tests will not be permitted where such tests have not attained definite and dependable results accepted generally by those qualified to judge. Thus, a federal court has refused to permit the use of the systolic blood pressure deception test because it had not gained sufficient scientific recognition. *Frye* v. *United States*, 54 App. D. C. 46, 293 Fed. 1013, 34 A. L. R. 145. The Landsteiner blood grouping test, on the other hand, has been generally accepted by the medical profession, said the court. The Supreme Court was convinced that the reason and the exigencies in the present case fully justified the granting of the application, subject to such restrictions and directions as the court might deem proper. On appeal, however, to the appellate division of the Supreme Court, second department, the order directing the plaintiff and her child to permit the taking of blood for the purpose of determining the defendant's paternity of the child was reversed. The appellate division of the Supreme Court stated that the plaintiff might submit to the taking of a specimen of her own blood, but it plainly would determine nothing. She admits that she is the mother of the child. A blood test of the defendant and the child might possibly determine the defendant's nonpaternity, but it was not claimed, nor was there any evidence in the record to show, that the test would determine the defendant's paternity. The child was not a party to the action, continued the court, and while the court of chancery has an inherent jurisdiction over the welfare of an infant, a ward of the court, nothing in this case indicated in the slightest that the welfare of the child was in any way involved or that the blood test could possibly be beneficial to the child. Section 306 of the Civil Practice Act, concluded the court, had no application to the facts of the case.—*Beuschel v. Manowitz (N. Y.), 271 N. Y. S. 277; 272 N. Y. S. 165.*

Compensation of Physicians: Liability of Corporation for Services Rendered at Agent's Request.—Deering, an employee of the Shredded Wheat Sales, Inc., employed the plaintiff-physician to treat a boy injured by one of the corporation's trucks, promising, according to the plaintiff's testimony, that the corporation would pay for the services rendered. Deering reported the accident and the name of the attending physician to the corporation and, at its request, reported the boy's progress weekly. Later, Gale, one of the corporation's assistant sales managers, came from Boston to Providence, where the child had been injured, to investigate the case and visited the boy in the hospital. On the corporation's failure to recompense the plaintiff-physician, he brought suit against the corporation and Deering. The trial court, on the motion of the defendants, granted a non-suit and the plaintiff appealed to the Supreme Court of Rhode Island.

We note, said the Supreme Court, that the name of the plaintiff appears in the pleadings as "Dr. James Hamilton." The designation "Dr." is a title, and is no part of the name of the plaintiff. It is therefore improper pleading so to designate the plaintiff. For the purposes of the motion for a nonsuit, continued the court, the plaintiff is entitled to every inference of fact favorable to him which can reasonably be drawn from the testimony. In view of the reports made to the corporation and the interest it evinced in the boy's condition, it would be natural to expect that the corporation should make some inquiry to ascertain whose credit had been pledged for the boy's care. When Gale was in Providence investigating the case, he knew that the plaintiff was rendering his services at the request of an employee of the corporation. It would have been unreasonable for the officials of the corporation to assume that the employee expected to pay for the treatment. As the corporation at that time had knowledge that its agent had contracted for the medical care of the child, it should have investigated the matter. If inquiry had been made, the facts would have been learned. The officials of the corporation, by closing their eyes to available information, are charged with the knowledge which it was their duty to ascertain. Had the corporation desired not to be bound, the services could and should have been ordered discontinued. Having failed to speak when it should, the corporation may not speak now when it would. The Supreme Court concluded that from the uncontradicted evidence the jury might reasonably have found that the corporation knew, or had reason to believe, that the plaintiff was rendering services and charging them in good faith to the corporation. The case should have been submitted to the jury. The action of the trial court nonsuiting the plaintiff was therefore declared erroneous, and a retrial of the cause was ordered.—*Hamilton v. Shredded Wheat Sales, Inc. (R. I.), 172 A. 614.*

Society Proceedings

COMING MEETINGS

American Orthopsychiatric Association, New York, Feb. 21-23. Miss Mary A. Clarke, 50 West 50th Street, New York, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 18-19. Dr. William D. Cutter, 535 North Dearborn Street, Chicago, Secretary.

Pacific Coast Surgical Association, Santa Barbara, Calif., Feb. 21-23. Dr. Edgar L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Southeastern Surgical Congress, Jacksonville, Fla., March 11-13. Dr. Benjamin T. Beasley, 478 Peachtree Street, N. E., Atlanta, Ga., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

20: 513-660 (Nov.) 1934

Varieties of Typhus Virus and Epidemiology of American Form of European Typhus Fever (Brill's Disease). H. Zinsser, Boston.—p. 513.

Age and Seasonal Incidence of Minor Respiratory Attacks Classified According to Clinical Symptoms. S. D. Collins and Mary Gover, Washington, D. C.—p. 533.

Seasonal Distribution of Measles, Scarlet Fever and Diphtheria for Periods of High and of Low Incidence. Sarah M. Hindman and G. E. Harmon, Cleveland.—p. 555.

Effect of Certain Environmental Factors on Urban Infant Mortality Rates. Marjorie T. Bellows and L. J. Reed, Baltimore.—p. 565.

Age Variations of Systolic Blood Pressure in United States Army Officers. Rachel M. Jones, Baltimore.—p. 574.

Further Observations on Staphylococcus Food Poisoning. E. O. Jordan and W. Burrows, Chicago.—p. 604.

Air-Borne Infection: Study II. Droplets and Droplet Nuclei. W. F. Wells, Boston.—p. 611.

Id.: Study III. Viability of Droplet Nuclei Infection. W. F. Wells, Boston, and W. R. Stone, Cambridge, Mass.—p. 619.

Sex Ratio of Pneumonia Mortality and Its Possible Relation to Occupation. J. A. Doull, G. E. Harmon and B. Fisher, Cleveland.—p. 628.

Incidence and Distribution of Ascaris Lumbricoides, Trichuris Trichiura and Hymenolepis Nana in Mississippi. A. E. Keller and W. S. Leathers, Nashville, Tenn.—p. 641.

American Journal of Pathology, Boston

10: 713-854 (Nov.) 1934

Functional Reactions of Human Thyroid: Contribution to Its Histophysiology. N. Goormaghtigh and F. Thomas, Ghent, Belgium.—p. 713.

*Unique Infection in Man Caused by New Yeastlike Organism, Pathogenic Member of Genus Sepedonium. G. H. Hansmann and J. R. Schenken, Washington, D. C.—p. 731.

Free Growth Period of Tubercle Bacilli in Guinea-Pig Omentum as Related to Hypersensitive State. C. E. Woodruff, Nashville, Tenn.—p. 739.

*Syphilitic Aneurysm of Left Coronary Artery with Concurrent Aneurysm of Sinus of Valsalva, and Additional Case of Valsalva Aneurysm Alone. G. A. C. Snyder and W. C. Hunter, Portland, Ore.—p. 757.

Adamantinoma of Upper Jaw: Report of Case. Leila S. Ghosh, New York.—p. 773.

Congenital Atresia of Tricuspid Orifice and Anomalous Origins of Coronary Arteries from Pulmonary Artery. D. M. Grayzel and R. Tennant, New Haven, Conn.—p. 791.

Calcification in the Brains of Equidae and of Bovidae. E. W. Hurst, Princeton, N. J.—p. 795.

*Focal Fat Infiltration in Liver. M. A. Simon, Cleveland.—p. 799.

Meningioma of Tuberculum Sellae with Hyperostosis: Report of Case with Autopsy Findings. P. C. Bucy and F. E. Kredel, Chicago.—p. 805.

Primary Intramedullary Neurogenic Sarcoma of the Ulna: Report of Case. J. H. Peers, Boston.—p. 811.

Relation of Increased Intra-Abdominal Pressure to Liver Lesions of Eclampsia. M. B. Strauss and S. Maddock, Boston.—p. 821.

Changes Produced in Central Nervous System of Mouse by Virus of St. Louis Encephalitis. J. E. Smadel and Elizabeth Moore, St. Louis.—p. 827.

Infection in Man Caused by Yeastlike Organism.—Hansmann and Schenken report the case of a chronic infection produced by a yeastlike organism belonging to the genus Sepedonium. The infectious agent was apparently localized in the skin and the regional lymph nodes for a period of about fifteen years. The skin was thickened and scaly throughout the course of the disease, except during the last three months of life, when the characteristic papular lesions developed. It is possible that this fungous infection could have been a secondary infection engrafted on a nonspecific scaly dermatitis, but the presence of the yeastlike organism in the skin and lymph nodes for at least a year and a half before the lesions became papular and the fact that the enlargement of the lymph nodes was an early observation make this possibility seem quite improbable. It is the authors' opinion that the disease was initiated by the fungus. The appearance of the organism in tissue, the large spiculated chlamydospores on artificial culture medium and the animal pathogenicity of the organism are the characteristic features by which subsequent cases may be recognized. The infecting organism is similar in the chronicity of the infection it produced, the macroscopic appearance of its growth on artificial culture medium and the formation of spores on lateral branches to the so-called oidium mentioned in medical literature. However, the large spiculated spores, the delicate mycelium and the animal pathogenicity are distinctly different from Oidium Gilchristii. Although the authors appreciate that the taxonomy of this large group of imperfect fungi, to which this organism belongs, is artificial and often unsatisfactory, it would appear that this organism could not be classified more satisfactorily for the present than with the genus Sepedonium, since no spore formation from the copulation of hyphae was observed.

Syphilitic Aneurysm of Coronary Artery with Aneurysm of Sinus of Valsalva.—In addition to the recognized causes of aneurysm of the coronary arteries, such as mycotic-embolic infection and arteriosclerosis, Snyder and Hunter offer another, syphilitic arteritis. They know the accepted belief is that the coronary arteries are rarely affected by syphilis distal to their intra-aortic segments. However, in one of their two cases there is a condition which modifies the usual circumstances, so that they do not hesitate to term the coronary lesion syphilitic. Undoubtedly the involvement of the left coronary artery was dependent first on the localization of an active syphilitic aortitis in the left posterior sinus of Valsalva and secondly on the direction of burrowing of the enlarging sac, which finally brought it into intimate contact with the main left coronary artery. There must then have been a spread of Spirochaeta pallida from the wall of the Valsalva sac to the wall of the coronary artery, with resultant destruction, fusion of the walls of the two juxtaposed structures and, finally, the formation of a true aneurysm in the weakened coronary artery. As evidence of the syphilitic nature of the lesion the authors submit the microscopic observation of obliterative endarteritis of the vasa vasorum, perivascular collars of plasma cells and lymphocytes, microscopic gummas, destruction and scarring of the media and adventitial fibrosis. A careful study of the aorta, coronary arteries and myocardium failed to disclose anything that could be interpreted as rheumatic disease. The vascular changes in the coronary artery of this case were quite different from the commonly observed adventitial cellular infiltration accompanying coronary arteriosclerosis. In addition to aneurysm of the coronary artery there was recent thrombotic occlusion of the sacculation and the lumen of the vessel adjacent to it. Death evidently supervened shortly after the thrombus formed, for only the earliest indications of infarction of the myocardium were present. In the other case it is possible that the incipient heart block, not evident clinically but suggested by the prolonged atrioventricular conduction time and the inverted T waves of the electrocardiogram, may have been caused by digitalis, but the authors feel that the Valsalva aneurysm together with degenerative and fibrotic changes in the adjacent myocardium afford a more plausible explanation for these phenomena. Another factor contributing to cardiac failure was aortic insufficiency. The right cardiac hypertrophy probably was due to increased pressure in the lesser circulation bed, due both to the stenosis of the pulmonary valve region by the Valsalva sinus aneurysm and also to pulmonary atherosclerosis, which in turn probably followed increased circulation pressure from left heart failure on the basis of aortic insufficiency and stenosis of the mitral area from the Valsalva aneurysm. The presence of plasma cells and lymphocytes in the walls of the pulmonary arteries suggests that the sclerosis of these vessels may in part at least have been the result of syphilis. The lesions in the bases of the lungs exhibited the characteristics of gummas and bore scarcely any resemblance to tubercles. Although the spirochete stains failed to demonstrate the organism, the authors believe, from the microscopic appearance of the lesions and the known syphilitic nature of the aortic disease, that the pulmonary foci are syphilitic as well. The aortic involvement was much more extensive than is usual in syphilis,

and a second saccular aneurysm has developed in the abdominal division of the vessel.

Focal Fat Infiltration in Liver.—Simon submits a case of localized fat infiltration of the liver resembling lipoma in the gross and not identical with any similar lesion reported in the literature. It is possible that other cases thought to be lipoma of the liver are of the same nature. The lesion does not correspond to the usual picture of lipoma in that there is no trace of capsule and the supporting tissue is made up in considerable part of remnants of the capsule of Glisson. There are no features indicative of malignant neoplasm. That the condition is a localized fat infiltration is supported by the fact that perilobular structures including bile ducts are found within the mass. There is no positive indication of marginal compression and between the normal liver cells and the fatty mass there is a zone, interpreted as transitional, in which many liver cells show small fat droplets. The process differs from ordinary fat infiltration of the liver in that all the cells within the mass show almost complete distention of cytoplasm by a single, large fat globule.

American Journal of Physiology, Baltimore

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*Voluntarily Induced Increases in Rates of Certain "Involuntary" Physiologic Processes of Human Subject. T. M. Carpenter and R. G. Hoskins, Boston, and F. A. Hitchcock.—p. 320.
Basal Metabolism in Old Age. J. R. Matson, Columbus, Ohio, and F. A. Hitchcock.—p. 329.
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Effects of Novocainization and Total Section of Nerves of Renal Pedicle on Renal Blood Flow and Function. C. P. Rhoads, D. D. Van Slyke, Alma Hiller and A. S. Alving, New York.—p. 392.
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Use of Ethyl Alcohol as Fuel in Muscular Exercise. A. Canzanelli, Ruth Guild and D. Rapport, Boston.—p. 416.
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Respiratory Metabolism of Infrahuman Primates. J. M. Bruhn, New Haven, Conn.—p. 477.
Effect of "Chronic" Experimental Liver Damage on Blood Sugar Response to Insulin. R. G. Sprague, Chicago.—p. 488.
Pregnancy Urine Given by Mouth to Gonadectomized Rats: Its Effect on Spontaneous Activity and on Reproductive Tract. C. P. Richter, Baltimore.—p. 499.

Voluntarily Induced Increases in Rates of Involuntary Physiologic Processes.—Carpenter and his associates determined the total respiratory exchange, pulse and respiration rates, and systolic and diastolic blood pressures in a person in the typical basal postabsorptive condition and in periods of five and ten minutes during which he voluntarily produced an increase in all the factors without apparent visible effort. The increases produced were from 13 to 32 per cent in the oxygen absorption, from 17 to 26 per cent in the pulse rate, from 9 to 28 per cent in the systolic pressure and from 4 to 27 per cent in the diastolic pressure. These changes were devoid of alterations of affect. Only when the subject lay practically nude was it possible to detect any indication of effort on his part. Under the ordinary condition of measurement of basal metabolism the causes for the increased values would have remained obscure. The observations demonstrate that it is possible for a person to maintain himself in a condition that is not basal but which under the ordinary rules of measurement would be considered conforming to the usual conditions of basal metabolism measurements. The metabolic rate measured under the usual prescribed basal conditions is therefore not necessarily the basal rate.

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Clinical and Mycologic Study of Suppurative Ringworm. A. M. Davidson, P. H. Gregory and A. R. Birt, Winnipeg, Manit.—p. 587.
*Acute Pancreatic Necrosis: Review of Twenty Cases. J. R. Parry and K. Murray, Hamilton, Ont.—p. 592.
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*Relationship of Sedimentation Rate in Rheumatic Infection in Childhood to Alteration in Albumin-Globulin Ratio. R. R. Struthers and H. L. Bacal, Montreal.—p. 603.
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*Study of Twenty-Four Hour Blood Sugar Curve in Diabetic Patients. P. H. Sprague and Dora A. Newson, Edmonton, Alta.—p. 609.
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*Postoperative Activity of White Blood Cells as Measured by Their Lipid Content. E. M. Boyd, Rochester, N. Y.—p. 626.
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Comparative Study of Habitual Use of Barbiturates and Coal Tar Derivatives as Furnished by Reports from Various Hospitals Throughout the United States. O. Lowy, Newark, N. J.—p. 638.
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Periodic Health Examination and the General Practitioner. H. M. Harrison, Toronto.—p. 650.
Maternal Mortality in Ontario. J. T. Phair and A. H. Sellers, Toronto.—p. 655.

Acute Pancreatic Necrosis.—Parry and Murray discuss twenty cases of acute pancreatic necrosis. The exciting agent is unknown, as is also the route it employs. Infected bile or duodenal contents injected under pressure into the pancreatic duct of an experimental animal causes an acute necrosis of the pancreas closely resembling that seen in man. As yet no satisfactory explanation has been offered in the cases in which the common bile duct and pancreatic duct enter the duodenum separately. Patients suffering from biliary colic who are not rendered relatively free from pain by the hypodermic administration of one-fourth grain (0.015 Gm.) of morphine, repeated in from two to four hours, are probably suffering from some complication of gallstone colic, and acute pancreatic necrosis is an important complication. Although acute pancreatic necrosis carries a higher mortality (40 per cent in the authors' series), there is reason to believe that it is probably not so high as has been heretofore supposed, because undoubtedly many patients who survive do not come to operation. Often the diagnosis may be made before operation if the triad of symptoms and signs is kept in mind; viz.: (1) the patient's general condition more acute than is usually seen in biliary colic, (2) pain and tenderness localizing to the left of the midline just above the umbilicus and (3) palpation of an indefinite thickening in the epigastrium (often it is not palpable until the patient is relaxed under the anesthetic). As a prophylactic measure, the removal of infected gallbladders would prevent many of these cases. When a diagnosis of acute pancreatic necrosis is made, immediate surgical attack on the pancreas is not required.

Sedimentation Rate in Rheumatic Infection and the Albumin-Globulin Ratio.—Struthers and Bacal observed that alterations in the sedimentation rate which have been shown to occur associated with rheumatic infection in childhood are associated with definite alterations in the albumin-globulin ratio. With a rise of the sedimentation rate there is a drop in the concentration of albumin and a rise in the concentration of globulin, and vice versa. The method that they used for the estimation of the albumin-globulin ratios is a combination of the Howes-Kjeldahl and Van Slyke methods. From their

present knowledge it would appear that alterations in the sedimentation rate are dependent on surface tension of the blood and corpuscle volume, hemoglobin concentration and hydremia.

Twenty-Four Hour Blood Sugar Curve in Diabetic Patients.—Sprague and Newson determined the blood sugar curve in a diabetic patient, aged 12, over a period of twenty-four hours. Blood was taken at intervals of three hours. During this time insulin was administered once, at 4:30 p. m., and the patient was given his usual diet of 1,500 calories, each meal of which had a dextrose value of 50 Gm. The blood dextrose determinations were carried out as described by the Schaffer-Hartman method. When these results were plotted, some of the phenomena the authors had been at a loss to understand in adjusting the insulin dosage were indicated. For the first six hours the results corresponded with what would be expected, in that there was slight postalimentary hyperglycemia, which gradually subsided. At this point, because of a misunderstanding, 15 units of insulin was administered. There was a marked fall in the blood sugar level, which continued on down and reached its lowest point about 11 p. m. From this time on there was a marked increase, reaching a peak of 0.237 per cent at 5 a. m. This increase took place in spite of the fact that no nourishment was taken after 5 p. m. the preceding evening. That this was apparently not an unusual condition was indicated by the fact that the parents found the patient in a comatose state on several occasions late at night and that it was almost impossible to obtain a morning specimen of urine which was sugar free. It was also recalled that all of the patient's episodes of insulin shock had occurred late in the evening. It occurred to the authors that it might be possible to control the glycosuria better by giving the morning insulin at 4:30 a. m. before the blood sugar had reached its peak. When this was done it was found that the morning specimen of urine was sugar free, and coincident with this the patient felt better. This study led the authors to carry out similar curves on other diabetic patients.

Postoperative Activity of Leukocytes.—Boyd performed a differential lipid analysis of the white blood cells on ten patients before they underwent surgical operation and at intervals of from three to seven days afterward. In one group of seven cases the postoperative course was normal and in the second group of three cases the postoperative course was prolonged, owing to serious complications. One death occurred. The changes in the lipid content of the white blood cells varied according to whether recovery from operation was normal or complicated. In those patients who returned to normal health in the usual time, the striking changes in the blood leukocytes were a rise in the level of phospholipid and free cholesterol (in certain cases an increase of more than 200 per cent was recorded for these lipids). In such leukocytes the values for neutral fat and cholesterol ester were usually low. On the other hand, when the patient did not respond normally to operation and marked postoperative complications developed, the changes in the leukocytes were the exact opposite of this; phospholipid and free cholesterol fell to a third or a half of their value before operation, and neutral fat and cholesterol ester tended to increase in amount. The group of variations in lipids for the former cases corresponds to those characterizing increased tissue activity; those in the latter group, decreased tissue activity. It is therefore possible to follow changes in the activity of the blood leukocytes by measuring their lipid content. The most significant variations occur in phospholipid and free cholesterol. Routine analyses may be restricted to one or both of these. The test may be performed in about three hours. Its use as an aid to prognosis, diagnosis and treatment is discussed and illustrative cases are cited.

Canadian Public Health Journal, Toronto

25: 513-562 (Nov.) 1934

The Place of Industrial Hygiene in a Municipal Health Program. F. G. Pedley, Montreal.—p. 513.
Milk Control for the Small Town. M. H. McCrady, Montreal.—p. 519.
Recent Health Legislation in Canada. By the Editorial Board in Cooperation with the Provincial Departments of Health.—p. 524.
Whooping Cough: Public Health Problem. N. E. McKinnon and Mary A. Ross, Toronto.—p. 533.
Health Education in a Small City. D. V. Currey, St. Catharines, Ont.—p. 538.
Prevention of Tuberculosis Through Traveling Clinics. A. LeBoeuf, Quebec.—p. 544.

Endocrinology, Los Angeles

28: 667-766 (Nov.-Dec.) 1934

Human Corpus Luteum and Progestin. J. P. Pratt, Detroit.—p. 667.
Interrelationship of Adrenal Cortex and Anterior Lobe of Hypophysis. H. B. Shumacher Jr. and W. M. Firor, Baltimore.—p. 676.
*Hypothyroidism Induced by Complete Removal of Normal Thyroid Gland in Treatment of Chronic Heart Disease. H. L. Blumgart and D. Davis, Boston.—p. 693.
Simulation of Progressive Muscular Atrophy by Exophthalmic Goiter. J. B. Ayer, J. H. Means and J. Lerman, Boston.—p. 701.
*New Procedure for Demonstration of Estrin in Blood of Women. C. F. Fluhmann, San Francisco.—p. 705.
Production of Ovulation by Gonadotrophic Extracts. L. E. Casida, Madison, Wis.—p. 714.
*Experimental Studies on Hypophysis Cerebri: III. Effect of Several Pregnancies in the Albino Rat. S. I. Stein, Minneapolis.—p. 721.
Cortico-Adrenal Influence on Blood Sugar Mobilization. R. L. Zwemer and Ruth C. Sullivan, New York.—p. 730.

Hypothyroidism Induced by Removal of Normal Thyroid in Heart Disease.—Blumgart and Davis outline the development characteristics and control of the hypothyroid state induced by total ablation of the normal thyroid, with especial reference to the signs and symptoms of hypothyroidism, the basal metabolic rate and the serum cholesterol. They describe a method of thyroid medication whereby the hypothyroid level, after total thyroidectomy, may be controlled so that patients with heart disease may be free from the distressing symptoms of myxedema and yet gain the benefits afforded by reduction in the work of the heart. In addition to the foregoing manifestations of hypothyroidism, which are present at a basal metabolic level of from minus 25 to 30 per cent, the authors have also observed the development of a mild anemia and a lowering in the free hydrochloric acid in the gastric secretion. No clinical symptoms have been associated with these changes. At this controlled level of metabolism they have also noted changes in electrocardiographic tracings and heart size characteristic of mild hypothyroidism. These changes were not accompanied by a decreased functional myocardial capacity; on the contrary, these patients with chronic heart disease have shown improvement in the face of such changes. Kidney function and carbohydrate tolerance are not diminished in these patients. In brief, hypothyroidism can be induced by total ablation of the normal thyroid, and the level of the hypothyroid state thus induced may be controlled, so that the patients remain comfortable and yet gain the benefits afforded by reduction in cardiac work. Under these conditions of reduced metabolism, the relief that has been afforded many patients with chronic heart disease has been definite. The symptoms that characterize the level of hypothyroidism maintained in these patients after operation are slight and, in the patients' opinion, insignificant in comparison with the benefits derived.

Demonstrating Estrogenic Substance in Blood.—Fluhmann describes the technic of a biologic test for the demonstration of estrogenic substance in the blood. The test depends on the injection of small amounts of untreated serum into spayed mice. A positive result is indicated by the production of a "mucification" of the vaginal mucosa. The method may be applied to quantitative studies, provided a sufficient number of test animals are employed. The examination of eighty specimens of blood obtained from forty-six women at different stages of the menstrual cycle shows that in this series the maximal concentration of estrogenic substance was reached during the middle of the interval, a secondary rise occurred at the time of the flow, and it was diminished just before and just after menstruation.

The Hypophysis Cerebri and Pregnancies.—Stein studied a group of ten virgin white rats in comparison with a group of ten litter mate test animals, which had had three pregnancies in rapid succession. The average body weight of the test animals was 38 Gm. heavier than the controls, which proves to be a significant difference; however, the body length of the test animals was not significantly greater than that of the controls, being only 0.8 cm. The average weight of the whole hypophysis in the test group was not significantly greater than that of the control. Evidence is submitted that utilizing every tenth section cut at 5 microns was sufficient to determine the relative size of the various lobes in the rat's hypophysis by the paper weight method. The posterior lobe of the test animals was proved to be increased over that of the controls, but the anterior and intermediate lobes showed no significant differences. A differen-

tial count of the cells in the anterior lobe (based on counting about 9,000 cells in each hypophysis) showed no significant difference between tests and controls. The average percentages for the test animals were 70.5 per cent chromophobes, 25.8 per cent acidophils and 3.7 per cent basophils; for the control group the corresponding figures were 72.9, 23.6 and 3.5. The cells in the two groups were apparently equal in size, for the "average number of cells per field" were practically equal in number for the test and control groups. From the standpoint of number, size, shape, nuclear pattern, staining reaction or distribution of cells in the gland, no definite or unique histologic feature could be found in the hypophysis of the pregnant group. No special cell that could be designated "pregnancy cell" as described by others for the rat was evident.

Journal of Comparative Neurology, Philadelphia

60: 185-354 (Oct. 15) 1934

Tonic Neck Reflexes in Lesions of Ce..bral Cortex in Dogs. F. M. Lissitza and A. S. Pentzik, Kharkow, U. S. S. R.—p. 185.
Studies on Cerebellar Function in the Teleost: I. Reactions Resulting from Cerebellar Ablation. H. Tuge, Sendai, Japan.—p. 201.
Id.: II. Is There a Cerebellotectal Path? Marchi Method. H. Tuge, Sendai, Japan.—p. 225.
Topographic Relations of Cortical Lesions to Thalamic Nuclei in the Albino Rat. W. H. Waller, Ithaca, N. Y.—p. 237.
Development of Behavior in Chick Embryos: Appearance of Somatic Movements. D. W. Orr and W. F. Windle, Chicago.—p. 271.
Id.: Spinal Cord Structure Correlated with Early Somatic Motility. W. F. Windle and D. W. Orr, Chicago.—p. 287.
Relationship Between Circumolivary Pyramidal Fascicles and Pontobulbar Body in Man. R. L. Swank, Chicago.—p. 309.
Volume of Neocortex of the Albino Rat and Changes It Undergoes with Age After Birth. C. G. Smith, Toronto.—p. 319.
Water and Solid Content of the Brains of Albino Rats Treated with Growth Hormone. H. S. Rubinstein and L. M. Fox, Baltimore.—p. 349.

Journal of Pediatrics, St. Louis

5: 727-886 (Dec.) 1934

*Study of Forty Cases of Persistent Pyuria. Pearl Summerfeldt and A. Brown, Toronto.—p. 727.
Chronic Pyuria (Congenital Defect): Presacral Sympathectomy: Case Report. Pearl Summerfeldt and A. Brown, Toronto.—p. 735.
Amebiasis in Children. S. J. Nichamin, H. G. Poncher and Marion Hood, Chicago.—p. 741.
Amebic Abscess of Liver: Report of Case in Child Five Years Old. L. K. Sweet, Peiping, China.—p. 750.
*Gangrene of Extremity in a New-Born Infant: Review of Literature. F. C. Dohan, Merion, Pa.—p. 756.
Relation of "Correct" Weight and Blood Findings to Physicians' Estimates of Nutrition of School Children. Regine K. Stix and C. V. Kiser, New York.—p. 763.
The Problem of Free Diphtheria Immunization in the School. E. H. Scherer and M. Polsky, Kansas City, Mo.—p. 771.
Acute Infectious Croup: Part III. General Study of Acute Obstructive Infections of Larynx, Trachea and Bronchi with Analysis of Seven Hundred and Twenty-Seven Cases. A. H. Neffson and S. M. Wishik, New York.—p. 776.
*Idiosyncrasy to Ammoniated Mercury Ointment: Report of Two Cases. P. Harper, New Haven, Conn.—p. 794.
*Exanthem Subitum with Encephalitic Onset. M. J. Wallfield, Brooklyn.—p. 800.
Auricular Flutter in a New-Born Infant: Case Report. J. Sherman and R. A. Schless, Philadelphia.—p. 802.
Auricular Fibrillation as an Early Toxic Digitalis Manifestation: Further Observations on This Drug in Children with Congestive Heart Failure. A. Jezer and S. P. Schwartz, New York.—p. 811.
Fluoroscopically Controlled Enema Reduction of Intussusception. E. D. Huntington and R. E. Williams, Chicago.—p. 819.

Study of Persistent Pyuria.—Summerfeldt and Brown present results of the study of forty cases of persistent pyuria. The investigation included clinical, intravenous pyelography and cystoscopic examination. From a clinical point of view a complete urologic investigation is indicated in any case of pyelitis in which the urine shows pus over a period of four weeks. The investigation has shown that the great majority of cases of chronic pyuria are due to inadequate drainage due to an obstruction of the urinary tract. The treatment has been directed to relief of the obstruction present. The immediate results are fairly satisfactory, but the end results as far as kidney infection is concerned are indefinite. In these treated cases, though there may be recurrence of pus in the urine, there is noted a definite improvement in the general health of the patients.

Gangrene of Extremity in New-Born.—Dohan reports a case of gangrene of the left lower leg and foot, which appeared about the thirteenth postnatal day. Serologic tests of the blood for syphilis were negative on the parents. The infant's serologic tests of the blood for syphilis were negative on repetition, following a moderately positive reaction in the first blood sample. A roentgenographic examination of the legs was negative for bony displacement but indicative of congenital syphilis. Histamine tests showed a circulatory efficiency of the nongangrenous leg that was distinctly below normal. Blood sugar, blood coagulation, blood counts and urinalysis, as well as body temperature and other clinical observations, deviated so slightly from the normal that they were not considered positive evidence. Pathologic and bacteriologic studies were inconclusive. Trauma, infected or noninfected embolism, constricting amniotic bands and angiospasm may all play a part.

Idiosyncrasy to Ammoniated Mercury Ointment.—Harper states that local application of ammoniated mercury in two cases gave a generalized rash and stomatitis together with a peculiar cyanosis and edema of the hands and feet. It is believed that the symptoms were manifestations of an idiosyncrasy to mercury rather than the results of absorption of relatively large amounts. Presumptive evidence for this is found in the rapid development of symptoms after application of relatively small amounts of ammoniated mercury, in the experimental demonstration that the absorption of mercury in this form is relatively poor, in the rapid recovery following the withdrawal of the drug, in the absence of evidence of renal damage, and finally in the acute and severe reactions to skin tests.

Sudden Exanthem with Encephalitic Onset.—Wallfield reports an uncommon case of sudden exanthem, which was ushered in by symptoms simulating encephalitis in a boy 12 years of age. After a high fever of three days, a critical drop in temperature occurred, followed by a rash typical of sudden exanthem in its morphology, distribution and duration with a rapid and uncomplicated recovery. The blood picture showed the characteristic leukopenia.

Kansas Medical Society Journal, Topeka

35: 445-476 (Dec.) 1934

Treatment of Pneumonia. O. W. Bethea, New Orleans.—p. 445.
*Abortive Treatment of Volkmann's Ischemia. M. E. Pusitz, Topeka.—p. 448.
Practical Considerations of Bronchoscopy and Esophagoscopy. E. M. Seydell, Wichita.—p. 451.
Nephritis. P. W. Morgan, Emporia.—p. 455.
Some Observations on Virus Diseases. F. A. Carmichael Sr., Osawatomie.—p. 459.
Chorea Gravidarum. R. M. Brian and M. Gerundo, Topeka.—p. 461.
Addison's Disease. M. Bernreiter, Kansas City.—p. 463.

Abortive Treatment of Volkmann's Ischemia.—Pusitz reports a case of early Volkmann's ischemia in which the following operation was performed: Under general anesthesia, long incisions were made through the skin, subcutaneous tissues and the deep fascia of the forearm (the so-called vaginal fascia of Prentiss). When the deep fascia was cut, the muscle mass bulged right out of the opening. A great deal of blood escaped from these cuts. With Mayo curved scissors, the muscle bundles were separated slightly by blunt dissection. Petrolatum gauze and then dry dressings were applied over the wounds. Almost immediately after the patient had recovered from the anesthetic he stated that he felt some relief. About five hours later the fingers could be moved slightly. They were still somewhat numb but the blueness had been replaced by a pinkish coloration. The fingers were not cold. The progress of the patient was a very slow, gradual improvement so that two weeks after operation practically all the swelling had cleared up. The motion of the fingers had improved greatly, although still far from normal. The stitches were removed and a nonpadded cast was applied according to the method of Böhler. The patient was discharged from the hospital and seen periodically in the office. Callus was very slow in appearing and it wasn't until five months later that the cast was removed. At that time it was noted the patient moved his fingers fairly well, there was good flexion and extension of the wrist but there was no pronation and supination. He was therefore told that he had a possible synosteosis between the radius and ulna and advised to have an operation. For the time being he was placed on physical therapy. Two months later he stated that his motion with reference to pronation and supination was increasing and that he was not going to return for further operative work.

Medical Annals of District of Columbia, Washington

3: 275-294 (Nov.) 1934

Osteitis Fibrosa Cystica Due to Hyperparathyroidism: Report of Case with Operative Removal of Parathyroid Adenoma. J. A. Cahill Jr., Washington.—p. 275.
*Posttonsillitic Pyemia: Report of Three Cases. W. K. Myers, Washington.—p. 279.
Mesenteric Cyst: Report of Two Cases. J. O. Warfield Jr., Washington.—p. 282.
Treatment of Far Advanced Inoperable Carcinoma of Breast by Intravenous Colloidal Lead: Report of Case. A. Horwitz, Washington.—p. 285.
Acute Phagedenic Ulcer of Leg: Report of Case. E. A. Cafritz, Washington.—p. 286.

Posttonsillitic Pyemia.—Myers reports three cases of pyemia following acute infection of the tonsils. The first case is that of a white man, aged 22, whose illness began with an acute tonsillitis followed by peritonsillar abscess. The subsequent course was that of generalized sepsis. The site of a thrombophlebitis was not determined. There were septic metastases to the lungs, pleurae, pericardium, wall of the chest, right buttock and right ankle. An anaerobic streptococcus was grown from the pus several times from different locations. The patient died forty days after the onset of sore throat. In the second case thrombosis of the left internal jugular vein developed subsequent to acute tonsillitis in a youth, aged 16. There were metastatic septic lesions in the lungs and pleurae and signs of venous stasis in the basal cerebral ganglions. Streptococcus haemolyticus was recovered from the pleural fluid. The course led to death three and one-half weeks after the onset of the sore throat. The third case is that of a man, aged 36, who developed a left peritonsillar abscess in the wake of an attack of acute tonsillitis. The course of the illness was one of sepsis with an abscess of the right buttock and urinary signs of involvement of the kidney. Streptococcus viridans was recovered from the blood. The patient died six weeks after the onset of the sore throat.

Pennsylvania Medical Journal, Harrisburg

38: 59-156 (Nov.) 1934

Psychiatry from the Standpoint of the General Practitioner. C. M. Campbell, Boston.—p. 59.
Therapy in Pneumococcic Pneumonia: Critical Review. J. M. Johnston, Pittsburgh.—p. 67.
Adolescence from Pediatric Point of View. T. O. Elterich, Pittsburgh.—p. 70.
Acute Appendicitis: Report of Twenty-Seven Hundred Cases. H. H. Donaldson, Pittsburgh.—p. 73.
Overwhelming Infections of Upper Respiratory Tract. E. S. Thorpe Jr., Philadelphia.—p. 77.
Differential Diagnosis of Genital Lesions. D. P. McCune, McKeesport.—p. 79.
Infection Following Mandibular Injections. J. M. Russell, Erie.—p. 82.

Philippine Journal of Science, Manila

54: 473-584 (Aug.) 1934. Partial Index

*Hexylresorcinol as an Anthelmintic: Its Efficiency Against Intestinal Parasites of Man. M. A. Tubangui, M. Basaca and A. M. Pasco, Manila.—p. 473.
Avian Malaria Studies: IX. Atabrine as a Prophylactic Drug in Sporozoite Infections of Avian Malaria. P. F. Russell, New York.—p. 483.
Weights of Visceral Organs of Filipinos in Different Diseases. W. de Leon, P. I. de Jesus and J. M. Ramos, Manila.—p. 495.

Caprokol as an Anthelmintic.—Tubangui and his associates investigated the efficiency of caprokol in 861 persons harboring different types of human intestinal worms. The drug was given in hard gelatin capsules and in the form of sugar coated pills, in the doses recommended by the manufacturers. It was administered early in the morning on an empty stomach and the patients were advised not to take food for at least four hours afterward. Each patient received only one treatment. Caprokol was found to suffer in anthelmintic efficiency when placed in gelatin capsules, owing most probably to the reaction of the drug with the gelatin. The capsules themselves underwent rapid deterioration; if they remained intact, they were easily broken in the mouth during the process of swallowing. The sugar coated pills, besides being more efficacious than the gelatin capsules, did not appear to be affected by climatic conditions. Their anthelmintic efficiency was appreciably increased by a saline purge twenty-four hours after their administration. In infestations with ascaris and hookworms the administration of single doses of caprokol pills removed from 82 to 85 per cent of the former parasite and 74 per cent of the latter. Of the ascaris cases from 53 to 64 per cent were found negative after the treatment and of the hookworm cases 25.4 per cent. In trichuris infestations, caprokol was found to be apparently effective, but some doubt is expressed as to the accuracy of judging the efficiency of the drug from the results of differential egg counts before and after treatment. Observations in a limited number of cases showed that caprokol is effective also against the human pinworm (Enterobius vermicularis) but not against the tapeworm (Taenia saginata).

Psychoanalytic Quarterly, Albany, N. Y.

3: 501-682 (Oct.) 1934

Influence of Psychologic Factors on Gastro-Intestinal Disturbances: I. General Principles, Objectives and Preliminary Results. F. Alexander, Chicago.—p. 501.
Id.: II. Typical Personality Trends and Conflicts in Cases of Gastric Disturbance. Catherine Bacon, Chicago.—p. 540.
Id.: III. Typical Personality Trends and Conflicts in Cases of Spastic Colitis. G. W. Wilson, Chicago.—p. 558.
Id.: IV. Oral Trends and Oral Conflicts in Case of Duodenal Ulcer. H. B. Levey, Chicago.—p. 574.
Id.: V. Pregenital Trends in Case of Chronic Diarrhea and Vomiting. M. Levine, Cincinnati.—p. 582.
Feeling of Guilt. H. Nunberg, New York.—p. 589.
Overvaluation of Love: Study of Common Present Day Feminine Type. Karen Horney, New York.—p. 605.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

42: 611-668 (Nov.) 1934

History of Obstetrics: President's Address. F. W. Lynch, San Francisco.—p. 611.
Air Embolism Complicating Abortion. H. Reynolds, Arlington, Calif., and O. I. Cutler, Loma Linda, Calif.—p. 619.
Asphyxia Neonatorum. P. E. Rothman, Los Angeles.—p. 622.
*Ménière's Disease Complicated by Recurrent Interstitial Keratitis: Excellent Result Following Cervical Ganglionectomy: Report of Case. R. F. Mogan and C. J. Baumgartner, Los Angeles.—p. 628.
Moist Abdominal Pad Container. L. Friedman, New York.—p. 632.
*Mobilization of Reticulo-Endothelial Cells as an Aid in Combating Infections. S. H. Tashian, Seattle.—p. 634.
Spinal Anesthesia in General, Nupercaine in Particular: Report of a Fatality: Division II. P. E. Spangler, Portland, Ore.—p. 646.

Ménière's Disease Complicated by Interstitial Keratitis.—Mogan and Baumgartner obtained a striking result following the removal of both superior ganglions in a case of Ménière's disease with recurrent interstitial keratitis. They believe that this offers a plausible theory as to the etiology of Ménière's syndrome, as well as a suggestion for further study in the treatment of this and associated conditions. In their case the peculiar periodicity, the unilateral sweating of the body and the whiteness of the bulbar conjunctiva preceding marked hyperemia, all pointed to some altered physiology of the sympathetic nervous system, somewhat resembling Raynaud's disease. They believe that the result obtained from the removal of the superior cervical ganglions and trunks is conclusive. They feel that a disturbance of the sympathetic nervous system must be considered an etiologic factor in Ménière disease. Otosclerosis is probably due to a metabolic disturbance in the petrous portion of the temporal bone, and the authors believe that it is not illogical to assume that it likewise might be due to altered function of the sympathetic nervous system. Results will of course not be satisfactory after permanent damage has resulted, and if ganglionectomy is attempted at all it must be done early.

Reticulo-Endothelial Cells in Combating Infections.—Tashian states that local immunity, or the defense mechanism of the skin, has been demonstrated by experiments on animals and clinically verified. The histiocytic or reticulo-endothelial system has been shown to be by far the most important factor in local tissue resistance against infection. The absence of histiocytes indicates a lowered tissue resistance and a fertile soil for bacterial intrusion and growth. A superior nonspecific active immunity may be acquired by nutrient broth injections. The author describes a varied number of cases for guidance as to the possible use of nutrient broth. Experience with indolent cutaneous ulcers should precede its employment in other conditions. He compounds a preparation that he believes is superior to the so-called laboratory nutrient broth. In more than 1,500 injections he has had only two cases that showed a mild degree of hypersensitivity. Neither case necessitated injection of epinephrine. He presents this only as an adjunct to already established procedures to combat infections.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

9: 97-116 (Oct.) 1934

First Impressions of Short Wave Therapy. W. J. Turrell.—p. 99.
Physical Treatment of Cardiovascular Sclerosis. T. J. Hoskin.—p. 103.

9: 117-134 (Nov.) 1934

Treatment of Rheumatism by Physical Methods. W. S. C. Copeman.—p. 118.
Fibrositis: Broad Survey. D. Pennington.—p. 120.
Subthermal Methods of Treatment in Rheumatic Diseases. C. W. Buckley.—p. 123.
Mineral Waters in Treatment of Rheumatic Diseases. L. C. Hill.—p. 125.

Journal of Neurology and Psychopathology, London

15: 97-192 (Oct.) 1934

*Observations on Records of Local Epileptic Convulsions. D. Denny-Brown and E. G. Robertson.—p. 97.
Apraxia in Corpus Callosum Lesions: Report of Three Cases. A. Bell.—p. 137.
*Congenital Syphilis in Mentally Defective Adults. K. C. L. Paddle.—p. 147.
*Unusual Type of Cortical Gliosis. R. M. Stewart.—p. 160.

Epileptic Convulsions.—Denny-Brown and Robertson present an account of the cerebrospinal fluid pressure, respiration and muscular movement in six epileptic patients. They observed that during epileptic convulsions the pressure of the cerebrospinal fluid shows changes reflecting passively the fluctuations of venous pressure arising chiefly from involvement of the thorax in the convulsion. The cerebrospinal fluid pressure rises in sleep and there is fluctuation in drowsy states. A slow fall of pressure preceding a convulsion is evidence only of an awakening of the patient. Certain phenomena, such as awakening, starts or even local spinal reflexes, may enhance the tendency to epilepsy and thus appear to be the direct excitant of discharge. Such effects when they occur are examples only of the addition of one nervous excitation to another. The convulsive stage of the epileptic attack is essentially an incoordinated discord resulting from the diffuse excitation of outgoing cortical neurons. Even in the most localized forms of epilepsy the essential epileptic process does not appear to be directly located in these neurons. The exhaustion of nervous activity underlying postepileptic hemiplegia is related to threshold changes in the excitability of pyramidal neurons, whereas the intervals between attacks and the fluctuations in tendency to attacks are related to an unphysiologic mechanism, which has no defined anatomic place.

Congenital Syphilis in Mentally Defective Adults.—Paddle states that of 1,598 adult mentally defective patients of all grades and both sexes, in whom the Wassermann and the Meinicke macroclarification tests were done on the blood serum, the cerebrospinal fluid of 1,525 was examined by the Wassermann test, Pandy's test, Lange's colloidal gold test and for increase of cells. Of these, 106 gave various abnormal reactions in the blood or cerebrospinal fluid and 1,492 were serologically negative. Of the 106, seventy-five were considered to have congenital syphilis, and of the 1,492 serologically negative cases three were deemed on clincal and other grounds to be congenitally syphilitic, giving a total of seventy-eight cases of hereditary syphilis or an incidence of 4.9 per cent. The Meinicke clarification test of the blood serum in adults was more sensitive than the Wassermann test. The incidence of congenital syphilis was higher among imbeciles than among idiots or the feebleminded, and higher in crippled epileptic patients than in uncomplicated cases. There was no evidence to show that mongolism was caused by syphilis. Conditions such as cretinism, choreoathetosis and postencephalitic lethargy were unconnected with congenital syphilis. Of the 1,525 cases, excluding ten cases of acquired syphilis with four abnormal fluids, the cerebrospinal fluid was abnormal in thirty, or 2 per cent. In seventy-six cases of congenital syphilis the fluid was abnormal in sixteen, or 21 per cent. The incidence of congenital syphilis was found to fall with advancing age, but it differed in the sexes. In females it was highest in children and lowest between the ages of 31 and 40 years, with a sharp rise between 41 and 50, suggesting a menopausal influence on the serologic tests used. At this age the incidence among the males was at its lowest, but there was a subsequent rise.

Unusual Type of Cortical Gliosis.—Stewart discusses the case of a feebleminded man with Erb's juvenile type of muscular dystrophy who died after the disease had been in existence for twenty years. During life the patient exhibited a bilateral and symmetrical enlargement of the salivary glands. The terminal illness was ushered in by a marked and persistent hypothermia, bradycardia, low blood pressure, profuse salivation, repeated vomiting, myosis and a positive oculocardiac reflex. A sudden failure of the autonomic nervous system may have caused these unusual terminal symptoms. Pathologic examination confirmed the diagnosis of muscular dystrophy, and, in addition, revealed the presence in both cerebral hemispheres of a special type of glial hyperplasia; this took the form of small, raised wartlike nodules in the cortical gray matter, numerous in the frontal convolutions and diminishing in number toward the occipital poles, in many situations accompanied by a disturbance of cyto-architecture and by the presence of primitive nerve cells. No glial or neuronic cells of giant type were found and the visceral organs contained no tumors. The condition appeared to represent an unusual type of primary gliosis rather than an abortive form of tuberous sclerosis.

Quarterly Journal of Medicine, Oxford

3: 523-624 (Oct.) 1934

*Effect of Yeast and Wheat Embryo in Anemias: II. Nature of Hematopoietic Factor in Yeast Effective in Pernicious Anemia. C. C. Ungley and G. V. James.—p. 523.
Chronic Ulceration of Colon. E. I. Spriggs.—p. 549.
*Oxycephaly: Report of Three Cases in One Family. E. Skipper.—p. 579.
*Plasma Proteins and Cardiac Edema. W. A. R. Thomson.—p. 587.
Epilepsy in Cysticercosis (Taenia Solium): Study of Seventy-One Cases. H. B. F. Dixon and D. W. Smithers.—p. 603.

Effect of Hematopoietic Factor of Yeast in Pernicious Anemia.—To avoid contact with traces of intrinsic factor possibly present in the gastric juice of cases of addisonian pernicious anemia, Ungley and James administered by other routes yeast products that influenced blood regeneration when given orally. The negative results of parenteral therapy under such conditions supported the hypothesis that the hematopoietic effect of yeast was due not to a substance resembling the liver active principle but to the extrinsic factor of Castle. The factor was present in the 65 per cent alcohol-soluble fraction of fresh (nonautolysed) brewers' yeast. Autolysis did not increase noticeably the potency of yeast for blood regeneration in pernicious anemia. There was no parallelism between the vitamin B_1 potency of yeast extracts as tested in rats and their effect on hematopoiesis in pernicious anemia. Including the previous series, eighteen patients with addisonian pernicious anemia have received yeast or wheat germ by mouth, and ten of them have shown some hematopoietic response. Many cases of pernicious anemia, although associated with a histamine-refractory achylia, may retain the ability to secrete the intrinsic factor, and a hematopoietic response to yeast is an indication of this functional activity on the part of the stomach. There was no correlation between the secretion of the intrinsic factor, as indicated by the hematopoietic response to yeast and the secretion of acid, pepsin or chlorides, as determined by gastric analysis after histamine stimulation. In those cases of megalocytic hyperchromic anemia in which the response to yeast is marked, it is probable that causes other than the deficient secretion of the intrinsic factor have contributed to the development of the syndrome. The value of the observations on the hematopoietic effect of yeast in elucidating the etiology of such anemias is discussed.

Oxycephaly.—During the last three years Skipper has had under observation a mother and two children suffering from oxycephaly who exhibited certain unusual features. One of them was subjected to cranial decompression. The cardinal symptoms of oxycephaly are defective vision and headache. The former is almost invariable, and is most commonly noticed during the first five years of life. It varies from slight impairment to complete blindness and is due to optic atrophy following papilledema. Papilledema has usually given place to atrophy before the patient is brought for medical examination. Atrophy

progresses to a certain extent in childhood and then remains stationary, never leading to blindness in adult life. It may result from increased intracranial pressure. Evidence of high intracranial pressure in oxycephaly is seen in the convolutional atrophy of the skull bones and in the bulging of the brain when the dura is incised at operation. In one case the intraventricular pressure was measured directly and it was much above normal. The suggestion that atrophy is caused by constriction of the nerve within the optic foramen has not been confirmed generally. Possible contributory causes may be stretching of the optic nerves from upward displacement of the brain during the vertical expansion of the skull and stasis in the retinal vessels consequent on defective return of venous blood from the head. Greig has shown that the jugular foramina may be small and the circulation in the jugular veins negligible. Intelligence is generally normal but may be impaired, poor vision undoubtedly contributing to this in many instances. The oxycephalic patient is usually a mouth breather from deflection of the nasal septum and deformity of the posterior nares. Anosmia is frequent. Uncommon symptoms are convulsions, deafness and loss of the sense of taste. The author's patients had an extremely mild degree of cranial deformity and he has found no record of any instances of oxycephaly in which the departure from the normal configuration of the skull was so slight. Usually the oxycephalic head is too high, short and broad, the first characteristic being the most striking. In his cases, which are evidently examples of delayed oxycephaly, the general shape of the head is almost normal, and only one patient is brachycephalic. Yet the cases are in all other respects typical examples of oxycephaly, and the diagnosis cannot be doubted. The crested vertex, deflected nasal septum, palatial deformity and the condition of the eyes of each patient are particularly characteristic. Roentgenograms of the skull revealing convolutional atrophy and no trace of sutures are, in conjunction with the clinical signs, diagnostic. The chief object of treatment is the prevention or the arrest of damage to vision.

Plasma Proteins and Cardiac Edema.—Thomson presents the results of an investigation of the plasma proteins in fifty-four cases, consisting of eighteen cases of heart failure with edema, sixteen of heart disease accompanied by edema, six of chronic interstitial nephritis, four of tuberculosis, a miscellaneous group of seven cases, and three junior members of the hospital staff who were used as normals. He observed a distinct diminution in the plasma proteins in cardiac edema, 87.5 per cent of the cases showing a plasma albumin content of less than 3.2 Gm. per hundred cubic centimeters. In heart disease without edema there is only a slight diminution in the plasma proteins as compared with the normal, 87 per cent of the cases showing a plasma albumin level greater than 3.2 Gm. per hundred cubic centimeters. In view of these observations the author suggests that plasma protein deficiency plays an important part in the etiology of cardiac edema. The main cause for the plasma protein depletion in cardiac edema is considered to be malnutrition. He also suggests that the dietary of patients with cardiac edema should contain the maximal amount of protein compatible with their digestive powers.

South African Medical Journal, Cape Town

8: 741-780 (Oct. 27) 1934

Some Problems of Preventive Medicine. E. N. Thornton.—p. 743.
Native Medical Ideas and Practices in Relation to Native Medical Services. G. W. Gale.—p. 748.
Cutaneous Anthrax: Its Treatment and Prevention. D. L. Ferguson.—p. 754.
Dysentery. E. Holland.—p. 756.

Japanese Journal of Obstetrics and Gynecology, Kyoto

17: 325-386 (Oct.) 1934

Application of "Atonin" in the Clinic. H. Kawakami.—p. 326.
Significance of So-Called Conglutinatio Orifici Externi. Y. Katsu.—p. 334.
Histologic Investigation of the Fetal Kidney. S. Tsuda.—p. 337.
Effect of Substances Blocking Reticulo-Endothelial System to Production of Agglutinin of Immune Serum. T. Kubota.—p. 342.
Suprarenal Function and Malignant Tumors. T. Tamura.—p. 349.
Trichomonas Vaginalis in Japanese Women. T. Ohga and S. Aoji.—p. 364.
Strong and Weak Points of the Spuman. S. Ito.—p. 367.
Mastitis and Puerperal Psychosis. S. Ito.—p. 373.
Biologic Study of Action of X-Rays to Malignant Tumors, Especially on Attitude of Parenchymal Tissues of Malignant Tumors to X-Rays. H. Kawakami.—p. 378.

Presse Médicale, Paris

42: 1761-1784 (Nov. 10) 1934

Oriel's Substance in Treatment of Allergic States. P. Savy and H. Thiers.—p. 1716.
Total Teleroentgenotherapy in Treatment of Leukemias and Hodgkin's Disease. G. Marchal, L. Mallet, P. Cottenot and J.-M. Lemoine.—p. 1763.
*Hyperparathyroidism and Angiospastic Syndromes. P. Bastai and G.-C. Dogliotti.—p. 1766.
Resistance of Heart to Thoracic Surgery. V.-V. Zikeeff and N.-A. Kidénitsch.—p. 1770.

Hyperparathyroidism and Angiospastic Syndromes.—Bastai and Dogliotti report five cases of partial parathyroidectomy for endarteritis obliterans (Buerger's disease). The following results occurred: (1) lowering of blood calcium more or less and approaching normal values; (2) immediate cessation of pains, even when intense and of long duration; (3) subjective and objective increase in the local temperature of the affected parts and increased sweating; (4) rapid healing of wounds that had resisted all types of earlier treatment, and (5) in cases in which hypertension existed, a lowering of the arterial pressure. They believe that in a normal person the calcium-phosphorus ratio and the other elements of similar action are in perfect relationship. Thus the vasomotor action may be regulated according to the functional requirements of the organs by the simple supply of sufficient blood. In disease, however, an excess of calcium ions may cause an increase in contractility and of the angiospastic state with all its consequences. It is in correcting this factor that parathyroidectomy exerts a favorable action on endarteritis.

Policlinico, Rome

41: 1881-1920 (Dec. 3) 1934. Practical Section

*Ovarian Treatment in Hemophilia. E. Schiavo.—p. 1881.
*Comolli's Distinct Sign in Fracture of Scapula. G. B. Cengiarotti.—p. 1890.

Treatment of a Case of Hemophilia.—Schiavo says that the oral administration of recently prepared ovarian extract, given in small doses and for a prolonged period, is valuable in the prevention and treatment of hemophilia. In his patient, aged 11, amputation of a phalanx of the finger was necessary owing to osteomyelitis. The subsequent hemorrhages endangered the life of the child. The operative wound failed to heal. Oral administration of freshly prepared ovarian extract, as mentioned, checked the hemorrhage and favored the healing process of the operative wound up to recovery.

Comolli's Sign in Fractures of Scapula.—Comolli's sign for the diagnosis of fractures of the scapula, more particularly of the surgical neck and body of the scapula, was described in the *Zentralblatt für Chirurgie* **59**:937 (April 9) 1932 (abstr. THE JOURNAL, July 2, 1932, p. 91). The sign is a typical swelling that develops in the region of the involved scapula shortly after the trauma. The triangular swelling is due to the fact that blood from the fracture gathers in front as well as in back of the scapula. As a result of the peculiar anatomic conditions the blood cannot escape and a cushion-like swelling, corresponding to the outline of the scapula, appears. Cengiarotti reports a case of fracture of this type in which the sign appeared with clear characteristics and lasted about eight days.

Deutsches Archiv für klinische Medizin, Berlin

177: 1-96 (Oct. 23) 1934

*Anemia and Angina Pectoris. M. Hochrein and K. Matthes.—p. 1.
Resorption of Fats in Pancreatic Insufficiency. N. Poczka and W. Fischel.—p. 14.
*Disturbances in Sodium Chloride Metabolism of Cerebral Origin. S. Molnár and Z. Gruber.—p. 29.
Blood Sugar in Internal Disorders. F. W. Lapp and H. Dibold.—p. 40.
Mechanism of Development of Vesicular Respiratory Sound and Its Influence on Changes of Respiratory Sound Under Physiologic and Pathologic Conditions. E. M. Schadkiewicz.—p. 48.
Changes in Electrocardiogram Following Extrasystoles of Ventricles. J. von Fernbach.—p. 59.
Rare and Changeable Electrocardiogram. K. Lühr.—p. 65.
Internal Complications of Inflammatory Diseases of Tonsils and Indications for Tonsillectomy. O. Riml and T. Motloch.—p. 71.

Anemia and Angina Pectoris.—The assumption that anemia may be the cause of angina pectoris induced Hochrein and Matthes to study the circulation of animals, particularly the

blood perfusion of the heart, during anemia and to investigate in a larger clinical material the subjective and objective signs of coronary insufficiency. They found that in the anemia of venesection (loss of blood up to 8 per cent of the total quantity) the withdrawal of the blood is compensated for by evacuation of the blood depot so that there is no reduction in the circulating blood. The arterial pressure, the pulse and the blood perfusion of the heart remain, as a rule, unchanged. If greater amounts of blood are withdrawn, the arterial pressure and the circulation become reduced. The blood perfusion of the heart generally remains constant for longer periods; occasionally it increases or decreases together with the systemic circulation. These observations indicate that the anemia of venesection produces, as far as the heart action is concerned, no impairment but rather an improvement of the coronary circulation. Observations on patients with pernicious anemia, secondary anemia and angina pectoris indicate that the relations between anemia and angina pectoris are extremely slight. Among 297 patients with angina pectoris, the authors observed only five patients with anemia (1.7 per cent), and three of these had an organic coronary disturbance. It may be assumed that patients with anemia, because they tire easily, are little exposed to the danger of overtaxing the heart. The assumption of coronary insufficiency is based on electrocardiographic signs (deep Q, abnormal ST) that are not at all typical. The authors observed patients with severe anemia who had neither subjective cardiac symptoms nor electrocardiographic changes.

Cerebral Disturbances of Sodium Chloride Metabolism.—After describing experiments on animals, Molnár and Gruber report sodium chloride tolerance tests on patients. Correct conclusions may be drawn only if the standard diet is known and after a prolonged period of observation. Disturbances in the sodium chloride metabolism, which are due to a changed nervous regulation, only rarely lead to clinical manifestations. Latent disturbances, without clinical manifestations but demonstrable with the tolerance test, are comparatively frequent. Of eleven patients with cerebral lesions, only one (with acromegaly and diabetes mellitus) had a normal sodium chloride metabolism. The sodium chloride metabolism may appear normal when the reduced concentration capacity of the organism for the chloride ions is compensated by a polyuria. Sodium chloride retention is due either to a weakness of the organism in the concentration of the chloride ions, to an absolute or relative oliguria, or to the simultaneous appearance of these disturbances. In three of eleven cases the sodium chloride content of the blood stood at 620 mg. per hundred cubic centimeters, that is, at the upper limit of normality already before the tolerance test, while in two others it even reached 632 mg. per hundred cubic centimeters. In some patients the salt retention was dry; that is, there was no increase in weight during retention and the increased elimination was not followed by a loss of weight. A portion of the retained sodium chloride is found in the blood, but the largest part is stored in the tissues. The existence of a disturbance in the sodium chloride metabolism does not permit a localization of the lesion, for such disturbances have been observed in apparently isolated disorders of the hypophysis as well as of the striatum.

Jahrbuch für Kinderheilkunde, Berlin

142: 257-320 (Nov.) 1934

Hypermotility Neurosis During Childhood. E. von Lederer and S. Ederer.—p. 257.
Cardiac and Circulatory Reflexes During Diphtheria in Children. H. Seckel.—p. 269.
*Does Roentgen Irradiation Effect Considerable Improvement in Mongolian Idiocy? W. Lange and H. Hippe.—p. 306.

Roentgen Irradiation and Mongolian Idiocy.—Lange and Hippe employed von Wieser's method of roentgen treatment in nine children with mongoloid idiocy. Because all of them were older children, their ages varying between 7 and 13, the authors decided to irradiate the base of the skull from five fields: the forehead, vertex, occiput and both temples. The fields were 6 by 8 cm. in size, the distance was 30 cm., the filter consisted of 0.5 mm. of copper and 1 mm. of aluminum, the tension was 160 kilovolts and the current strength was 6 milliamperes. Depending on the character of the case, from 5 to 15 per cent of the unit skin dose was applied to each field. The irradiation of the different fields was done at intervals of seven days, and pauses of from three to six weeks were interposed between the series. The treatment was continued on the average for about two and one-half years. The irradiations were not followed by unpleasant complications. Since two of the children left the institution before the completion of the treatment, only seven could be observed to the end and could be subjected to after-examinations. An improvement in the mental alertness was observed in only one of the cases. Superficiality and giddiness improved in one girl. The concentration capacity remained unchanged in all the children, even in one of the boys in whom the intelligence quotient had increased greatly. In all, the results of the treatment were so insignificant that no particular value can be ascribed to it. Not a single child was improved to the extent that it might later become capable of earning a livelihood.

Klinische Wochenschrift, Berlin

13: 1633-1664 (Nov. 17) 1934. Partial Index

Chemical Reactions as Foundation of Pharmacologic Actions. W. Heubner.—p. 1633.
*Content of Saliva in So-Called Blood Group Ferment. O. Sievers.—p. 1640.
Distribution of Residual Carbon in Blood in Malignant Tumors. K. Voit.—p. 1641.
Analysis of Circulatory Disturbances Developing Under Influence of Low Atmospheric Pressure. W. Borgard.—p. 1642.
*Diagnosis of Lead Poisoning in Children. M. Kasahara.—p. 1646.
Nitrogen Metabolism Following Resection of Stomach. A. S. Kosdoba and A. B. Rais.—p. 1649.

"Blood Group Ferment" in Saliva.—Sievers, after calling attention to studies by Witebsky and particularly to those by Satoh reported in the *Klinische Wochenschrift* (13:798 [June 2] 1934; abstr. The Journal, July 28, 1934, p. 1690), describes his own studies on this subject, which have direct connection with those of Satoh in that they aimed at determining whether the amount of blood group ferment in the saliva undergoes in the course of the day certain fluctuations dependent on the meals, and whether these fluctuations are independent of the other constituents of saliva. The author was able to corroborate Satoh's statements about the decrease or the disappearance of the blood group ferment following irrigation of the oral cavity. A comparative constancy of the content of the saliva in A substance could likewise be corroborated. Further experiments were made to determine whether the disappearance of the blood group ferment leaves the diastase action of the saliva unimpaired. It was found that, whereas the blood group substance and diastase showed no decrease after breakfast but rather an increase, the blood group ferment decreased greatly. This indicates that there is no connection between the action of the diastase and the blood group ferment. Examination of the saliva during various times of the day disclosed that the blood group ferment is either lacking or greatly decreased after meals, but that it again increases to its maximum within four or five hours. The strongest ferment action could be demonstrated in the saliva taken while the person was still fasting. The author observed further that all persons whose saliva was examined had blood group ferment, although the action was not demonstrable in every experiment. Moreover, the amount of ferment may vary in the same person even if the specimens have been withdrawn under the same conditions. In other experiments it was observed that specimens of saliva that influenced heated A saliva always destroyed the A substance in Witte's peptone, but that, on the other hand, the blood group ferment action was occasionally directed only against the A substance in Witte's peptone without exerting a noticeable influence on that of the saliva. This proves that Witte's peptone is a more susceptible A substrate for the blood group ferment than is the saliva.

Diagnosis of Lead Poisoning in Children.—Kasahara points out that in Japan lead poisoning of children is relatively frequent. This is due to the fact that the powders used by the mother as well as for the nursling often contain lead. Children develop two types of lead poisoning: (1) lead anemia and (2) lead poisoning with meningeal symptoms. The first type is characterized by the following symptoms: anemia, restlessness, irritability, biting at the nipples, lack of appetite, loss of weight and occasionally nausea with vomiting. The lead line on the

gums is hardly ever demonstrable, but the teeth occasionally have grayish black or black deposits. The finger and toe nails have been known to turn black. Hematoporphyrinuria hardly ever develops, and the urine does not contain urobilin or urobilinogen. The hemoglobin is decreased, as are also the erythrocytes. Moreover, there is a considerable increase in the number of reticulocytes, and erythrocytes with basophil granules appear. In the severer cases poikilocytosis, anisocytosis and polychromasia develop. In lead poisoning with meningeal symptoms there develop, in addition to the signs mentioned, those indicating pressure on the brain, manifested by protrusion or tightly stretched fontanels, tremor of the hands, convulsions, impairment of consciousness and gnashing of the teeth. The cerebrospinal fluid shows increased pressure, xanthochromia, increased protein and globulin content, slightly increased sugar content and lymphocytosis. The second form develops primarily during the warm season. Blindness due to atrophy of the optic nerve has been known to develop as a sequel. The mortality rate is about 33 per cent. The diagnosis rarely gives difficulties. The author, searching for the bandlike shadows at the end of the long tubular bones, found that these shadows are demonstrable not only on the end of the long, tubular bones but also on the shorter bones, on the flat bones and around the centers of ossification. He calls attention to the skin reaction suggested by Lewin for the diagnosis of lead poisoning and describes a modification that he found helpful. For examining the blood for the presence of basophil granules, the author used the method of Manson, but he emphasizes that the hydrogen ion concentration of the dye solution is important. He found that, if Manson's method is used, a p_H of 5.54 is most satisfactory.

18: 1665-1704 (Nov. 24) 1934. Partial Index

Metabolism of Bile Pigments. H. T. Schreus and C. Carrié.—p. 1670.
*Elimination of Follicle Maturation Hormone (Prolan A) and of Estrogenic Substance in Urine of Patients with Skin Diseases. R. M. Bohnstedt.—p. 1675.
*Strengthening of Antithyroid Protective Action of Blood by Thyrotropic Hormone of Hypophysis. H. Eitel and A. Loeser.—p. 1677.
*A Vitamin and Cholesterol Metabolism. J. A. Collazo, Isabel Torres and Sanchez-Rodriguez.—p. 1678.
Failure of Insulin Therapy in Diabetes Complicated by Impairment of Liver. R. Engel.—p. 1682.
Cardiac Activity and Sympathetic Poisons: Influence of Intravenous Injection of Atropine on Cardiac Action. G. W. Parade and G. Jäger.—p. 1684.

Follicle Maturation Hormone and Estrogenic Substance in Urine During Skin Diseases.—Bohnstedt observed increased elimination of the active principle of the anterior hypophysis and of estrogenic substance, respectively, in several dermatoses, but he thinks that so far the elimination of these substances may be considered significant only in acne rosacea. The urine of two patients with symmetrical dysmenorrheal dermatitis contained greater amounts of the follicle maturation hormone. However, in four women with eczema, in whom the cutaneous manifestations became exacerbated during menstruation, estrogenic substance was not present in the urine nor could the follicle maturation hormone be detected in larger quantities. In case of hypofunction of the testicles as the result of inflammatory disturbances (orchitis fibrosa) or of atrophy, an increased elimination of the active principle of the hypophysis may become manifest. The author thinks that more general conclusions are as yet premature and that further investigations will be necessary.

Strengthening of Antithyroid Protective Action of Blood by Thyrotropic Hormone of Hypophysis.—In former studies, Eitel and Loeser showed that the thyroid activating effect of the thyrotropic hormone of the anterior hypophysis is no longer demonstrable following preliminary treatment with blood, for approximately 1 cc. of injected serum was found to counteract the effect of one guinea-pig unit of the thyrotropic substance. Sheep's blood proved to be most effective. The authors show that the antithyroid protective action of the blood may be increased by preparatory treatment of the donor animals with thyrotropic hormone. They injected sheep daily for several weeks with 1,000 guinea-pig units of the thyrotropic serum. Specimens of blood were withdrawn on the thirteenth, twenty-first and twenty-eighth days and were examined. The first specimen revealed a considerable increase, and after four weeks of treatment the antithyroid protective action of the blood was six times as great as before the injections of the thyrotropic substance. Preparatory treatment with thyroxine was found to work no changes in this respect, and the blood of patients with exophthalmic goiter likewise was found to have no essential protective action. The antithyrotropic substance is contained in the serum and in small quantities also in the corpuscles. The site of formation of the antithyrotropic substance is still unknown. It can hardly be in the hypophysis, for the oral administration of large amounts of dried anterior hypophyseal tissues does not counteract the thyroid activating action of the thyrotropic hormone. Moreover, Anderson and Collip found that the blood of hypophysectomized rats even contains the antithyroidal principle.

Vitamin A and Cholesterol Metabolism.—Collazo and his associates demonstrate that vitamin A exerts a great influence on the cholesterol metabolism. They found that in rats with A avitaminosis the cholesterol content of the serum as well as of the organs is considerably reduced, while in rats with A hypervitaminosis it is increased.

Münchener medizinische Wochenschrift, Munich

81: 1789-1836 (Nov. 22) 1934. Partial Index

Treatment of Placental Hemorrhages. F. von Mikulicz-Radecki.—p. 1797.
Predisposition to Multiple Spasms and Relations to Allergy. H. von Hoesslin.—p. 1799.
Practical Significance of Spirometry of Lungs. K. Schilitz.—p. 1803.
Simulation of Diabetes for Seventeen Years. G. Jungmichel.—p. 1809.
*Therapy of Pulmonary Infarcts. P. Meissner.—p. 1811.
Treatment of Rheumatic Polyarthritis. K. Patschkowski.—p. 1811.
Indications for and Results of Short Wave Therapy in Surgery. A. Lob.—p. 1812.

Therapy of Pulmonary Infarcts.—Meissner points out that Trendelenburg's operation for pulmonary embolism, although quite successful in suitable cases, should be resorted to only in rare instances. Then he discusses the smaller embolisms that are not immediately fatal. If the embolism occurs in the peripheral portions of the lung, hemorrhagic pulmonary infarcts develop and the ensuing symptoms are dyspnea, anxious facial expression, profuse sweating, rapid pulsation, eventually cyanosis and piercing pleural pain that radiates upward into the shoulder. Annoying continuous hiccup develops quite frequently in such cases. The temperature does not rise high, but an irritating cough develops and, if the infarct is rather extensive, the patients have a hemorrhagic sputum. Since the most painful symptoms are due to irritation of the phrenic nerve, the author treats these cases by anesthetization of this nerve. He uses from 15 to 20 cc. of a 1 per cent solution of procaine-epinephrine. The anesthetization of the phrenic nerve always results in a considerable reduction or complete cessation of pain, and produces considerable improvement. The diaphragm is more or less immobilized and the danger of a new embolism is greatly reduced. The pain conduction is interrupted, the patient becomes quieter, the respiration is more free, the hiccup disappears, the hemorrhagic sputum is more easily ejected and swallowing of food is no longer painful.

Zentralblatt für Gynäkologie, Leipzig

58: 2769-2832 (Nov. 24) 1934

Physiology of Formation of Milk. K. J. Anselmino and F. Hoffmann.—p. 2770.
Myomas and Malignant Tumors of Uterus. L. Brings.—p. 2775.
Colloid Cancer of Uterine Cervix. O. Tilmann.—p. 2779.
*Destruction of Interstitial Portion by Electric Needle for Sterilization of Tubes. F. A. Scheffzek.—p. 2786.
More Exact Prognosis in Old Primiparas. A. L. Sherbak.—p. 2790.
*Functional Disturbances of Female Sex Organs Following Artificial Abortion. N. Kaluschkin.—p. 2793.

Sterilization by Destruction of Interstitial Portion of Tube.—Scheffzek destroys the interstitial portion of the tube by electrical coagulation. The abdomen is opened by a transverse fascial incision, the length of which does not have to exceed 7 cm. even if the layer of abdominal fat is considerable. The tube is severed transversely at its junction with the uterus. A thin electric needle is then introduced into the lumen of the tube and the interstitial portion of the tube is destroyed down into the uterine cavity. Then the needle is introduced into the lateral portion of the tube and the tubal canal is destroyed. The author employed this method in 182 women. It proved

successful in spite of the fact that the majority were unruly, insane women, in whom it proved impossible to enforce postoperative rest.

Disturbances of Sex Organs Following Artificial Abortion.—Kakuschkin reports observations on 1,921 women. He cites statistics indicating that hardly one sixth of the women remain free from abortions, that more than four fifths resort to artificial interruption of pregnancy, and that more than one fourth interrupt all their pregnancies. The average number of abortions for each woman was 2.34, while the average of normal deliveries was only 1.87. In evaluating the influence of abortion on the function of the female sex apparatus the author considers fertility, menstrual function and libido. He found that over 50 per cent became sterile; that is, they did not become pregnant for more than two years following the abortion. Examination of the women who had become sterile following abortion revealed inflammatory changes in the uterine adnexa, inflammations in the pelvis, catarrhal processes in uterus and vagina, atrophic processes, pathologic position of the uterus, deficient development of uterus and vagina, and neoplasms in the uterus and ovaries. It is of course not certain whether all these changes were the true causes of the sterility in the different cases. He assumes that other changes, for instance those in the secretory function, may cause the sterility. Disturbances in the menstruation were observable in 150 cases. The libido was reduced in a number of women. The author assumes that the reduced libido as well as other postabortive disturbances are the result of a hormone trauma.

Klinicheskaya Meditsina, Moscow

12: 1217-1394 (No. 9) 1934. Partial Index

Rôle of Nervous System in Inflammation. Y. P. Sakharov.—p. 1235.
Clinical Significance of Study of Fractional Albumin in Cerebrospinal Fluid in Neuropsychiatry. A. E. Kulkov and V. I. Veyland.—p. 1240.
Hepatocardiac Factor in Cardiac Insufficiency. D. Pletnev and O. Sokolnikov.—p. 1248.
Increase in Intraspinal Tension. M. B. Krol.—p. 1258.
*Tumors of Linea Mediana (Tumors of Fourth Ventricle). N. M. Itsenko.—p. 1366.
*Symptoms of Lesions of Central Nervous System Following Neoarsphenamine Injections. N. S. Chetverikov and A. Ya. Kavyrshin.—p. 1374.

Tumors of Linea Mediana.—According to Itsenko, Cushing was the first to separate the group of tumors limited to the fourth ventricle of the brain and the vermis. Of the author's fourteen cases, verified either at operation or at necropsy, four were tumors of the fourth ventricle, while ten involved the vermis with a partial extension into the cerebellum proper. The author considers the following as basic symptoms of the syndrome of tumors of the median line: 1. A characteristic posture of the head and at times of the entire body. He views this phenomenon as a complicated postural reflex rather than an adaptation to relieve the dynamic block in the ventricles. 2. Marked difficulty experienced by the patient in attempting to change from a horizontal to a vertical posture. 3. Dependence of headache on the change of position of the head. 4. Paroxysmal periodic character of the headaches. 5. Variability and inconstancy of certain symptoms as to their localization and intensity. 6. A number of cerebellar symptoms, particularly of the vermis, without a definite unilaterality. The less characteristic symptoms are (1) seizures of tonic convulsions of decerebrate rigidity type, (2) diminution of tendon reflexes in the lower extremities, (3) papilledema, (4) Kernig's sign, (5) involvement of various cranial nerves, (6) pain in the back of the neck and tenderness along the occipital nerve, (7) failure to obtain fluid on cisternal puncture, (8) constant and pronounced hydrocephalus, (9) rather acute onset, rapid course, at times galloping, and (10) death characterized by respiratory paralysis. The author offers differential points in the diagnosis of tumors involving the fourth ventricle and those involving the vermis. The following are more characteristic for tumors of the fourth ventricle: periodicity of headaches, dependence of headache on the position of the head, production of symptoms on changing from the horizontal to the vertical position, involvement of cranial cerebral nerves, variability and inconstancy of symptoms and characteristic mode of death. In the tumors of the vermis the cerebellar symptoms are more marked than in those of the fourth ventricle.

Lesions of Central Nervous System Following Injections of Neoarsphenamine.—Chetverikov and Kavyrshin report three cases in which symptoms of meningo-encephalitis developed after injection of neoarsphenamine. In two cases neoarsphenamine was administered for the treatment of malaria and in one for psoriasis. In the first case symptoms developed after a second dose, 0.45 Gm. of neoarsphenamine, administered nine days after the initial dose of 0.3 Gm. In the second case, 0.6 Gm. of neoarsphenamine was administered two days after the initial dose of 0.45 Gm. In the third case symptoms developed after the third injection of 0.6 Gm. administered two days after the second injection. The clinical onset in the three cases was abrupt and stormy, suggesting a diffuse involvement of the entire central nervous system, a meningo-encephalitis. The symptoms were fever, headache, vomiting, general weakness, pain in the lower extremities, loss of consciousness, disturbances of the pelvic organs and involvement of the upper and lower extremities, with sensory disturbances and paresis of the cranial nerves. Such cases not infrequently terminate lethally. In the authors' cases the cerebral symptoms subsided in the course of from two to three weeks, the process remaining localized in the spinal cord and leading to paralysis of all the extremities or of only the lower ones. The subsequent course is chronic with a gradual but insignificant improvement in symptoms. The more marked symptoms are those caused by the involvement of the thoracic and the lumbosacral segments of the cord. The authors conclude that lesions of the spinal cord are more permanent than those of the brain. They believe that an increased permeability of the hemato-encephalic barrier is an important factor enabling neoarsphenamine to permeate the central nervous system. The condition of the vegetative endocrine apparatus as well as that of the metabolism and colloids play a part. The dose and the interval between doses are of significance for each case. The authors recommend the following prophylactic measures: 1. Maximal precautions must be observed in the presence of defective functioning of the vegetative endocrine apparatus. 2. The permeability of the hemato-encephalic barrier should be determined in all such cases. 3. The treatment in women must be interrupted in the premenstrual and menstrual periods. 4. Preference is to be given to small fractional doses, while the intervals between the doses must not exceed the established norms. 5. The injection of neoarsphenamine should be performed slowly.

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Paraffin Therapy.—According to Kirichinskiy and his associates, the therapeutic value of paraffin is based on the physical qualities of this substance (contractibility, elasticity, conductivity of heat and so on), which make it fit for hot applications in certain diseases, principally of rheumatic origin. The founder of the paraffin treatment method was Barthe de Sandfort, who used it as early as 1910 in Paris. The authors have used it since 1932 in a somewhat modified form; instead of pouring paraffin on the affected extremity, they put the member into liquid paraffin in a specially fitted box. This modification has the advantage of transmitting more heat to the tissues. Insignificant alterations of pulse and of body temperature are observed, the perspiration is more abundant as the sittings are repeated, and this is accompanied by marked relief of pain. Every sitting lasts from one-half to one hour. The authors studied 200 cases treated according to this method and found a marked improvement of the condition in 80.4 per cent. In 11.6 per cent no changes were noted and in 3 per cent there was a change for the worse.